CHAPTER 8: MODELLING MULTIMODAL TRANSPORT CORRIDORS-THE CASE OF LAND-LOCKED LAOTIAN TRADERS

8.1 INTRODUCTION

Establishing door-to-door container-load costs on any given trade is a potential nightmare for exporters and importers. Invariably it is highly time consuming, confusing and complex to calculate. The purpose of this chapter is to evaluate the alternatives routes available to Lao traders when conducting international trade transactions, and to find the most competitive mode or the best possible combination of transport modes for export to, import from Europe, and within South East Asia. Applying a multimodal transport cost model[1] will illustrate the case study. The model is stand-alone and flexible enough to be applied to any operational circumstances and to a supply chain of any length. The validity of this model is tested against a real case in international supply chain movement, namely the export of garments from Vientiane (Lao PDR) to the port of Rotterdam (Netherlands), the import of wine from Marseilles (France) to Vientiane (see routeing maps in Appendix D) and the appraisal of multimodal transport corridors within South East Asia, from Vientiane to Singapore (see routeing maps in Appendix E). The main elements of the model are as follows: cost, time, distance, transport mode and intermodal transfer. The data were obtained through interviews with Laotian garment exporters, Lao foodstuff importers, regional logistics/transport service providers and shipping lines.

8.2 BACKGROUND

Tougher international competition and expansion of geographical markets have forced manufacturers and traders to focus on integrated production and transport logistics strategies in order to reduce costs, and at the same time, to obtain a higher service standard. The need to control the transport costs have become as important as the need to keep down other production costs. The emergence of reliable and competitive

door-to-door multimodal transport services can contribute to, and foster, new trading opportunities as well as increased competitiveness (UNCTAD, 1994a).

The competitiveness of internationally traded products is greatly influenced by various factors, which build up the overall transportation cost. The cost associated with the physical transfer of the goods is an essential piece of information in the negotiation of an international trade transaction (Carter & Ferrin, 1995; Bertazi, Grazia, Speranza & Ukovich, 1997). Transit time is also an important element as goods in transit cost money (Allen, Mahmoud & Mc Neil, 1985; Blumenfeld, Burns & Diltz, 1985; Tyworth & Zeng, 1998). Uncertainty in cost quantifying (direct as well as indirect) is another issue faced by traders that might disadvantage an exporter (ESCAP, 1997b). The above-mentioned considerations indicate that trading opportunities can benefit from better-organised transport services such as multimodal transport and integrated logistics operations (Marlow & Boerne, 1992). International transit transport in the South East Asia region has been the subject of much discussion in recent years with Bezy (1996) highlighting the areas where effort needs to be focused. Field missions conducted, during 1999, in the region have shown that:

- There is an insufficient use of key waterways;
- There is a need to encourage and promote Freight Forwarding, the development of Multimodal transport and Logistics Management;
- There is a need to promote the development and expansion of the Inland Clearance Depot (ICD) concept;
- Documentation, customs procedures and data exchange need to be simplified and harmonised;
- Greater use of rail transport (partly through the ICD concept) should be encouraged;
- Better cross-border co-operation and transport co-ordination is needed;
- The use of Multimodal Transport Document (MTD) should be expanded;

[1] Originally proposed by Boerne (1990), developed by Beresford & Dubey (1990), and improved by Beresford (1999a).

- ASYCUDA (Automatic System for Customs Data) and EDI (Electronic Data Interchange) should be adopted as widely as possible, bringing time, security and cost benefits.

Another development taking shape is the formulation of an ASEAN Customs transit system for the facilitation of goods in transit, which forms part of the *ASEAN Framework Agreement on the Facilitation of Goods in Transit*[2]. This is a co-ordinated effort among ASEAN bodies covering customs, trade and transport. Another *ASEAN Framework Agreement on Multimodal Transport* is currently being negotiated. According to Banomyong (1999c), these agreements are expected to contribute further to the facilitation of goods transported within ASEAN particularly among the countries in mainland South East Asia.

8.3 MULTIMODAL TRANSPORT CORRIDORS ROUTEING

At the present moment there is ***no integrated transport or logistics system*** in place in the region but various multimodal transport corridors are available to users of the regional transport network. The smooth flow of freight within a multimodal transport corridor will determine its success. The case of Lao traders is taken to illustrate the point, as Lao PDR is a land-locked country with limited access to the sea.

The costs presented in this chapter are based on quotes that were obtained during interviews with logistics and transport service providers, which operate on Lao PDR import and export routes. This data is not publicly available. Prices quoted concern the shipment of 1 TEU (Twenty Foot Equivalent Unit) on a Freight All Kind (FAK) basis. However, depending on the quantity of goods transported, lower quotes may be possible. Transit time data was also obtained from the same group of respondents, from the transit times offered for each route to the variation in delays at critical nodal links.

[2] Adopted on December 16, 1998 in Hanoi, Vietnam.

A confidence rating[3] is also introduced for each route, modes of transport and nodal links. This confidence rating is based on data collected through interviews with the various stakeholders. It must not be forgotten that this rating is subjective. The rating is based on a five point type scale: (1) = Almost no confidence; (2) = Not very confident; (3) = Fairly confident; (4) = Confident, and (5) = Very Confident. It is also assumed that the shipment is leaving the point of origin on Monday (or day 1).

This chapter is divided into three parts. The first part deals with the export of garment from Lao PDR to Rotterdam (Netherlands), the second part will handle the import of wine from Marseilles (France) to Lao PDR, while the third part will explore the export routeing alternatives within South East Asia, from Vientiane to Singapore.

[3] For justification see Chapter 5.

PART A: GARMENT EXPORT ROUTEING

Cargo description: 1 x 20 foot container stuffed with 408 flat pack cartons (7866 pieces of men shirt), weighting 3,158 kg. The stuffing of the container was done at the exporter's premises. The volume of the goods is 29 cubic-metres (CBM). The value of the cargo is USD 15,732 or USD 2 per shirt. The price is quoted EXW Vientiane. Existing alternative routes and modal combinations for the movement of unitised freight between Lao PDR and Rotterdam in the Netherlands are summarised in Table 8.1.

Table 8.1: Routeing alternatives for freight, Lao PDR-Rotterdam (Netherlands)

Route	**Origin: Lao PDR**	**Mode**	**Intermodal Transfer**	**Mode**	**Transhipment/ Intermodal Transfer**	**Mode**	**Destination: Netherlands**
1	Vientiane	Road	Danang (Vietnam)	Sea	Singapore	Sea	Rotterdam
2	Vientiane	Road	Bangkok (Thailand)	Sea	Singapore	Sea	Rotterdam
3	Vientiane	Road	Laem Chabang (Thailand)	Sea	Singapore	Sea	Rotterdam
4	Vientiane	Road	Lad Krabang (Thailand)	Rail	Laem Chabang (Thailand) & tranship in Singapore	Sea	Rotterdam
5	Vientiane	Road	Lad Krabang (Thailand)	Rail	Port Klang (Malaysia)	Sea	Rotterdam

Source: Compiled from industry sources

8.3.1 Route No. 1 Via Danang (Vietnam)

Table 8.2: Vientiane-Danang-Singapore-Rotterdam

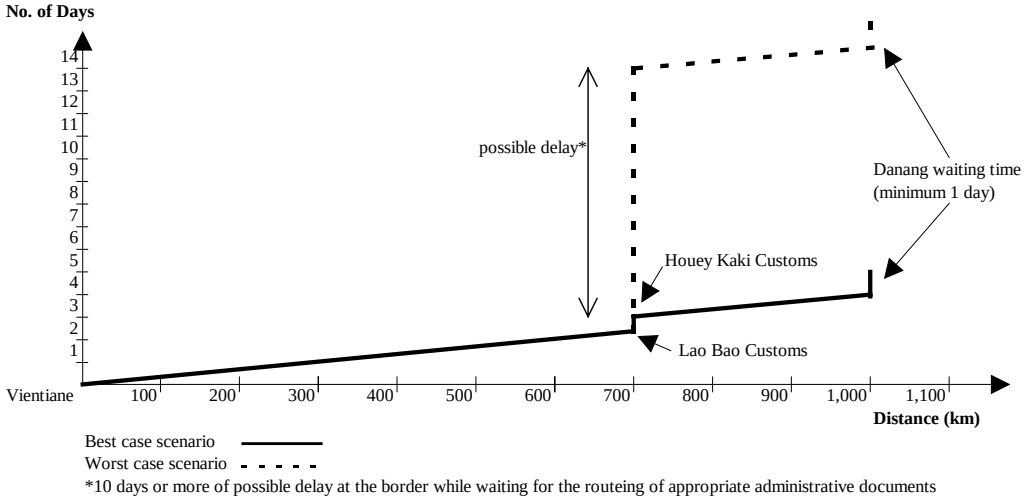
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Danang	Road	3 days	1,060	750	1
	LaoBao-Houei Kaki Customs		2 hours	0	220	1***
4	Danang Charges			0	20	3
	THC			0	1	2
5	Feeder Connection		1 day	0	-	3
	Danang-Singapore	Sea	4 days	1,910	400	3
9	Singapore Charges			0	59	4
10	Singapore tranship		1 day	0	-	4
31	Singapore-Rotterdam	Sea	21 days	15,359	1,270	4
	Other Handling Charges**			0	700	2
	TOTAL		**31/32 days**	**18,329**	**3,420**	**2.7**

*Assuming no delays
** Include profit
***This confidence rating can be improved with the payment of a higher customs charge or other types of financial incentive.
Source: Compiled from industry sources

Route 1 has been chosen because this route represents the traditional route for Lao import and export (see routeing map in Appendix D1). This is due to the fact that before the opening of the Lao economy, international trade was generally conducted with former communist countries and the only access to the sea that was available to Lao PDR was through Vietnam. Under a bilateral protocol, all transit traffic through Vietnam must utilise the Lao Bao (Lao PDR)-Houey Kaki (Vietnam) border crossing and Danang port as the point of entry or exit. The protocol relates to the issue of transit permit or authorisation for each shipment. The protocol does not cover the issue of vehicles movement.

For goods in transit through Vietnam, a transit permit must be issued in Vietnam, by the Ministry of Trade, on Application by Lao Freight Forwarder (LFF) through the Lao Ministry of Commerce. The information on the permit from the Vietnamese Trade Ministry is then transcribed by Vietnamese Customs to create a transit document called 'Import and Export Form for Transit Cargo'. The routeing of documents from Vientiane to Hanoi to Danang port can take a few weeks whereas the actual transit time is not more than 3 to 4 days. If there are no administrative delays when the shipment leaves Vientiane on Monday, the container will arrive in Danang on Thursday with a feeder connection to Singapore on Friday and arrive in Singapore on Tuesday the following week. Figure 8.1 illustrates the variation in transit time for the inland leg, from Vientiane to Danang. The fastest time for the journey is 3 days while the longest is usually around 10 to 14 days. Lao traders and logistics/transport service providers provided this estimate. Feeder connection and mainline vessel transhipment is seen as much more reliable with a confidence index of 3.5 for the sea-leg.

Figure 8.1: Variation in transit time for Vientiane (Lao PDR)-Danang (Vietnam)



Source: The Author

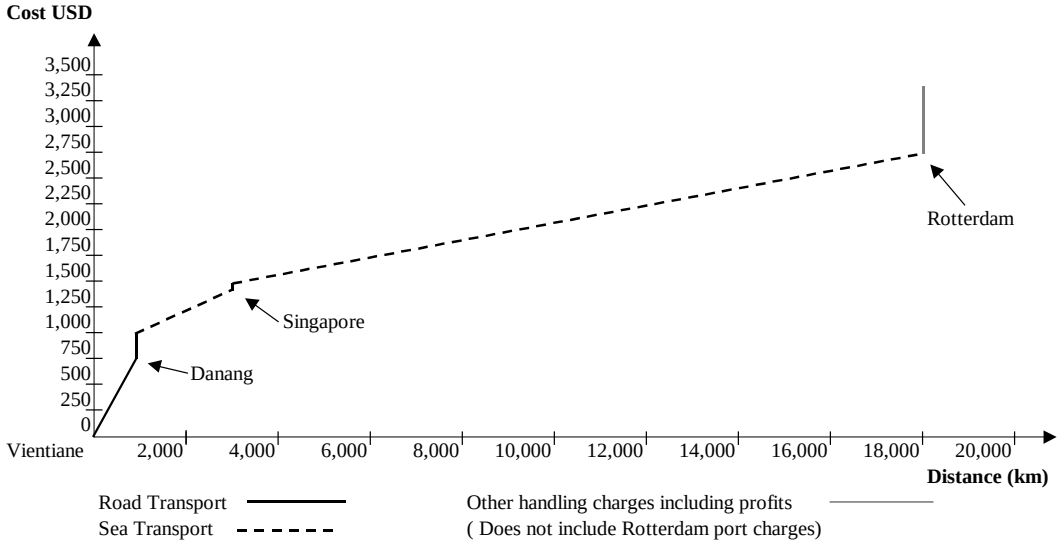
The confidence index for the whole route is not very high at 2.7. This is due to the fact that there are too many uncontrollable factors, especially on the land leg of the journey. Transit via Vietnam is a difficult process. Discrepancies between ministerial agencies' strategies relating to transit cargo are one of the main reasons for

the very low confidence index of the land leg from Vientiane to Danang. The confidence index for this particular route can be increase by providing financial incentives or through personal connections at strategic nodal links such as the Lao Bao (Lao PDR)-Houei Kaki (Vietnam) border crossing. The sea leg is less problematic and thus is seen as more reliable.

The delivered price up to Rotterdam, with the transport cost, will be USD 19,152 or USD 2.43 per shirt. Transport cost represents around 21.5% of the delivered goods costs.

It is interesting to note that, as expected, the sea leg is the most important transport leg with 94% of the total journey by distance but only represents 49% of the total transport cost. Other charges (including Customs) represent more than 29% of the total transport cost whereas road transport comprises 22% of the total transport cost. The price obtained through this route is the highest (3,420 USD/TEU) of all the routes with the longest transit time (31/32 days), but is quite representative of trading routes where the freight flows are not very important and subject to very strong imbalance. Currently there are only four-scheduled feeder ships from Singapore with a capacity of 300-350 TEUs calling at Danang per week, whereas Singapore as a global hub has main line connection to Europe everyday. Terminal handling charge is still quite minimal at the moment at only 1 USD. Figure 8.2 shows the movement for the whole journey graphically.

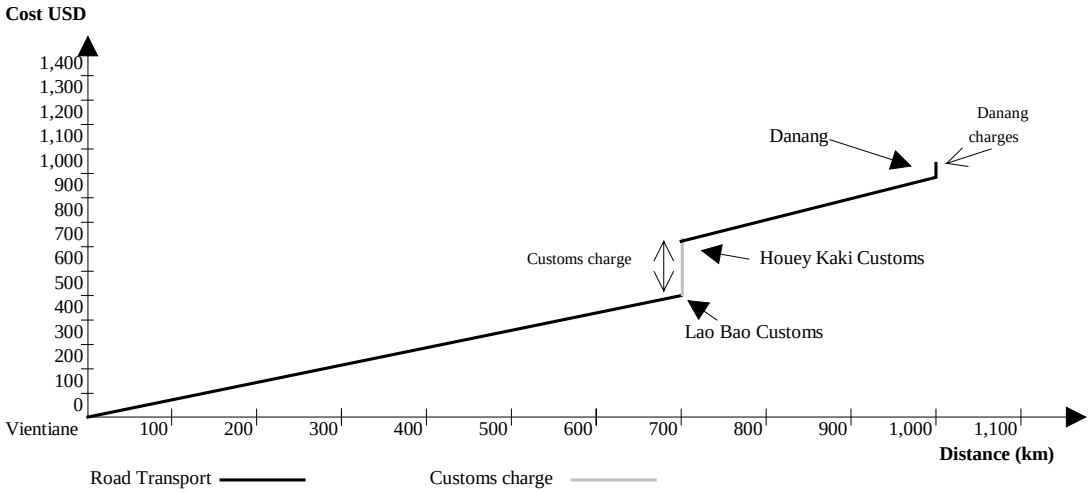
Figure 8.2: Vientiane-Danang-Singapore-Rotterdam (Route1)



Source: The Author

Transit through Vietnam has been difficult because of the poor condition of east-west roads as a result of user damage. Although the road from Danang to Lao Bao has been repaired, the movement of goods along this route is still hampered by very poor roads in Lao. The Lao Bao-Danang route has been selected by the Asian Development Bank (ADB) as an economic corridor for North East Thailand, Southern Lao PDR and central Vietnam with infrastructure investment and upgrading of Danang port. According to the ADB, it is believed that this corridor will divert freight from Thai ports for the regions named above to Danang port. An appraisal of the inland leg from Vientiane to Danang shows that Customs cost represents 22% of the total inland transport cost. The trucking rate for this route is at 70 cents/km. Figure 8.3 represents the cost curve the inland leg for Route 1.

Figure 8.3: Vientiane-Lao Bao-Houey Kaki-Danang



Source: The Author

8.3.2 Route No. 2 Via Bangkok (Thailand)

Table 8.3: Vientiane-Bangkok-Singapore-Rotterdam

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-NongKhai	Bridge	0.5 hour	4	8	4
	NongKhai-Bangkok	Road	1 day	633	315	3
	Document Charge			0	50	3
	Customs*** Lao side Thai side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
2	Bangkok Port: 1.Container stevedorage 2. Container wharfage 3. Lift on/off charges 4. THC		1 day	0	 21 22 17 68	 3 3 3 3
	B/L charge			0	13	3
	Tea money**** Customs Port			0	 6.7 14.1	 1 1
3	Feeder Connection		1 day	0	-	
4	Bangkok-Singapore		4 days	1,540	230	4
8	Singapore Charges**			0	59	4
9	Singapore tranship		1 day	0	-	4
30	Singapore-Rotterdam	Sea	21 days	15,359	1,270	4
	Other Handling Charges**			0	300	3
	TOTAL		**30/31 days**	**17,549**	**2,484.8**	**2.89**

* Assuming no delays
** Include profit
*** Personal connections and financial incentives can help increase Customs' confidence index
**** This is the minimum amount required for normal services
Source: Compiled from industry sources

As almost all of Lao PDR's trade has moved from communist countries to the European Union, North America and ASEAN, the ocean routeing has had to shift

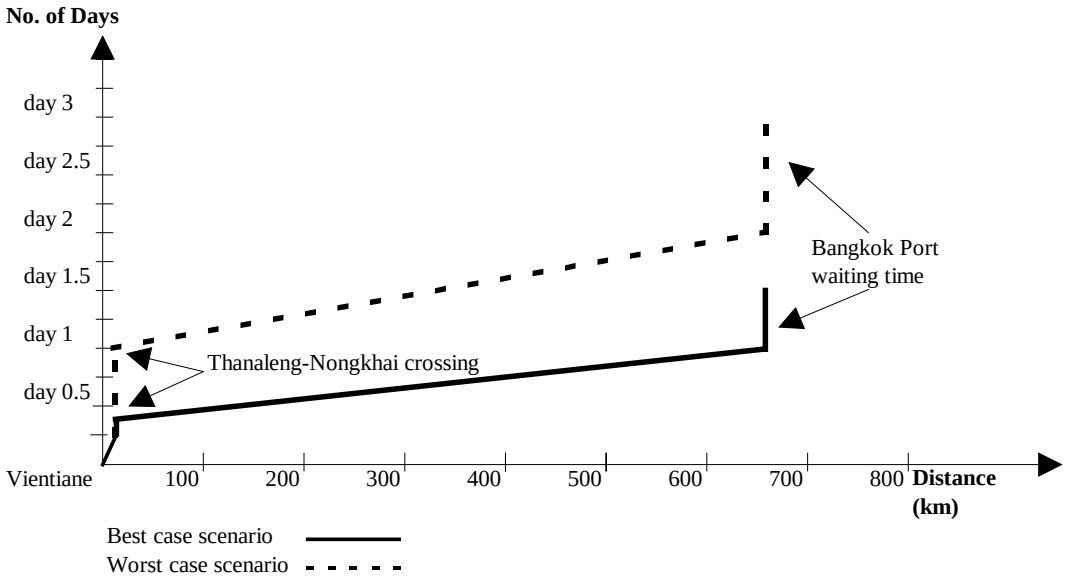
from utilising Danang port to Bangkok port. Thailand is a regional hub in its own right, with daily feeder connections to Singapore.

Route 2 (see routeing map in Appendix D2) is the preferred route by Lao exporters. Movement of traffic through Thailand between Lao PDR and a third country is governed by a 'Transit Transport Agreement' between the two governments, first signed in 1978 and renewed annually[4]. This provides for forwarding and transport to be carried out by authorised and certified operators.

The confidence index for this route is slightly higher than for the transit route via Vietnam at 2.89. This index would have been higher, almost to the "fairly confident" level if the 'tea-money' factor was not included but 'tea-money' does add a certain level of certainty to the cargo flow. Similar to the route via Vietnam, areas of low confidence are at the border crossing between Lao PDR and Thailand. Offering financial incentives for speedier and reliable customs processing can again increase this confidence. Tea money must also be paid at Bangkok port for port related services. Non-payment will result in disappearance or non-loading of cargo on feeder ship. Figure 8.4 shows the possible areas where delays might occur from Vientiane to Bangkok Port. The fastest possible journey is just under 24 hours while the longest transit time is around 2 to 3 days.

[4] Renewal is automatic unless one of the parties denounces the Agreement.

Figure 8.4: Variation in transit time from Vientiane to Bangkok

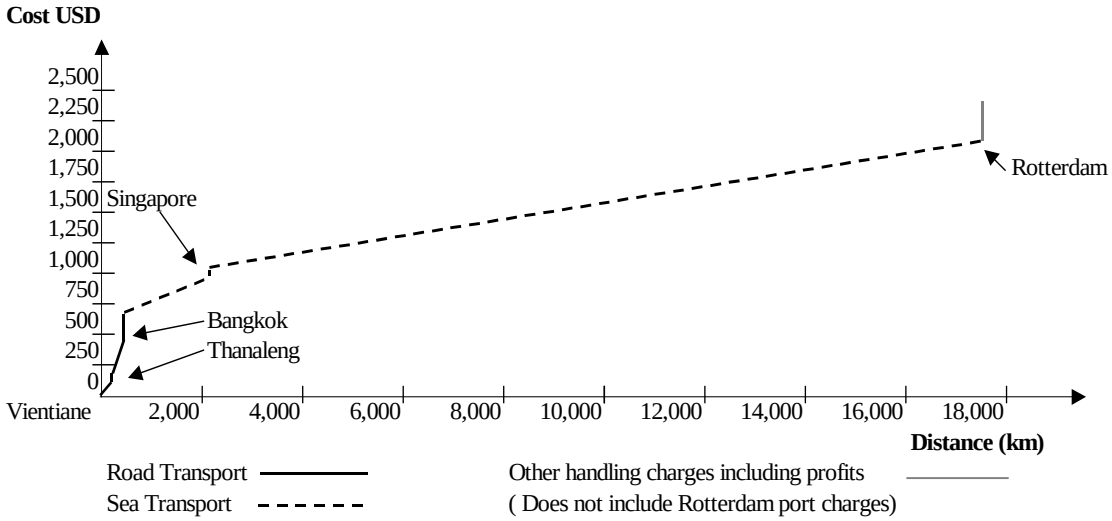


Source: The Author

Most of the problem for transit traffic concerns import cargo where significant delays occur. There are fewer difficulties for export cargo when compared to the administrative impediments that may be encountered when transiting through Vietnam; also the distance from Vientiane to Bangkok (650 km) is shorter than to Danang (1060 km). The transit time is also much more competitive with only one day from Vientiane to Bangkok compared to 3 to 4 days (if all the paperwork is in order) to Danang. The total transport cost via Bangkok to Rotterdam is 2,484.8 USD with a transit time of 30/31 days. As expected the sea leg is again the dominant mode with more than 96% of the total journey by sea and represents around 60% of the total transport cost. Other charges (including Customs) are not as high as on the Vientiane-Danang route as they only represent a little more than 12% of the total transport cost (see Figure 8.5).

The delivered price up to Rotterdam will be USD 18216.8 or USD 2.31 per shirt. Transport cost represents around 15.5% of the delivered goods costs.

Figure 8.5: Vientiane-Bangkok-Singapore-Rotterdam (Route 2)

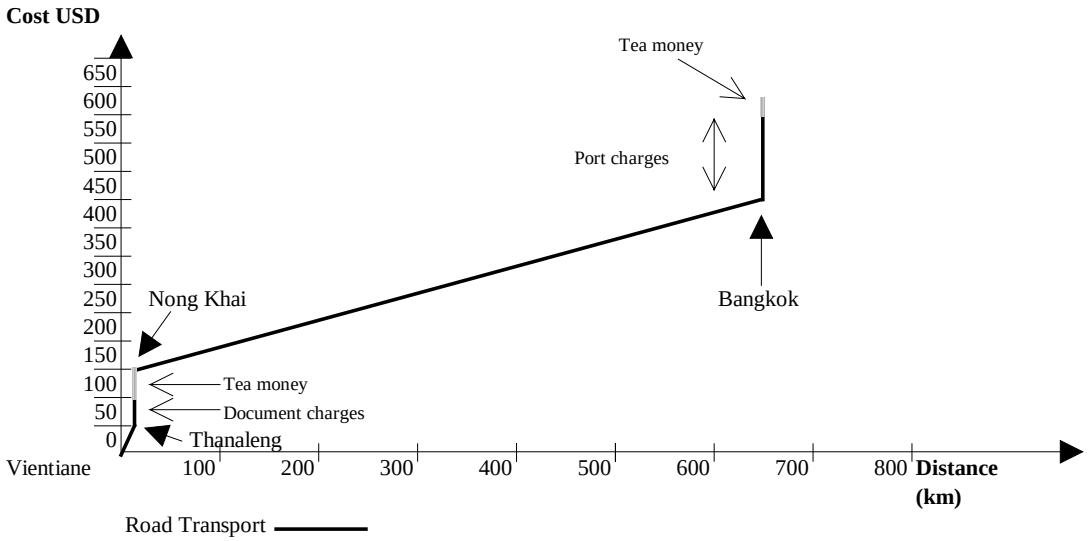


Source: The Author

A closer analysis of the Vientiane-Bangkok leg (see Figure 8.6) reveals that the most expensive inland leg is from Vientiane to Thanaleng which is the Laotian transit warehouse cum border post opposite of Nongkhai in Thailand as the freight rate for this leg is 3.6 USD/km. The border crossing in itself represents 20% of the transport cost up to Bangkok port with 12% going into document charges and 8% into 'tea-money'.

Bangkok port is also quite expensive to use, as the shipper will have to pay a 161.8 USD per container. Terminal handling charges (THCs) represents 42% of the charges that are incurred at Bangkok port. 'Tea money' represents roughly 13% of the local charges. The Port Authority of Thailand has tried to eradicate 'tea money' but was unsuccessful as workers adopted a 'go-slow' attitude resulting in major delay and congestion in the port area during early 1999. THC has also come under the scrutiny of the Thai Ministry of Commerce but without much success as liner operators did not accept the lowering of their THC charge. The shipping lines were arguing that since the various authorities were not able to stop 'tea money', this cost will need to be included in their THC.

Figure 8.6: Vientiane-Thanaleng-Nongkhai-Bangkok



Source: The Author

8.3.3 Route No. 3 Via Laem Chabang (Thailand)

Table 8.4: Vientiane-Laem Chabang-Singapore-Rotterdam

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-NongKhai	Bridge	0.5 hour	4	8	4
	NongKhai-Laem Chabang	Road	1 day	714	362	3
	Document Charge			0	50	3
	Customs: Lao side Thai side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
2	Laem Chabang Port: 1.Container stevedorage 2. Container wharfage 3. Lift on/off charges 4. THC		1 day	0	 21 22 17 68	 3 3 3 3
	B/L charge			0	13	3
3	Feeder Connection		1 day	0	-	4
4	Laem Chabang-Singapore		4 days	1,540	230	4
	Singapore Charges			0	59	4
9	Transhipment waiting time		1 day	0	-	4
30	Singapore-Rotterdam	Sea	21 days	15,359	1,270	4
	Other Handling Charges**			0	300	3
	TOTAL		**30/31 days**	**17,630**	**2,511**	**3.16**

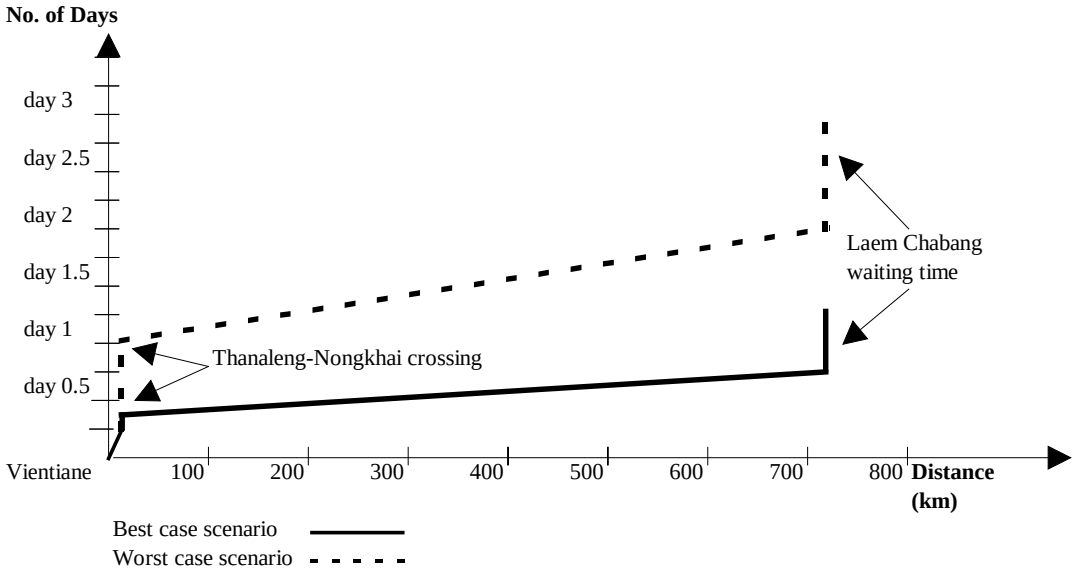
*Assuming no delays

**Include profit

Sources: Compiled from industry sources

For cargo that exits through the port of Laem Chabang, the procedures are the same as for cargo having to go through Bangkok port (see routeing map in Appendix D3). Nonetheless, this route is marginally more expensive by going through Bangkok at a total price of 2,511 USD per TEU although there is no difference in the inland transit time from Vientiane to Laem Chabang (see Figure 8.7).

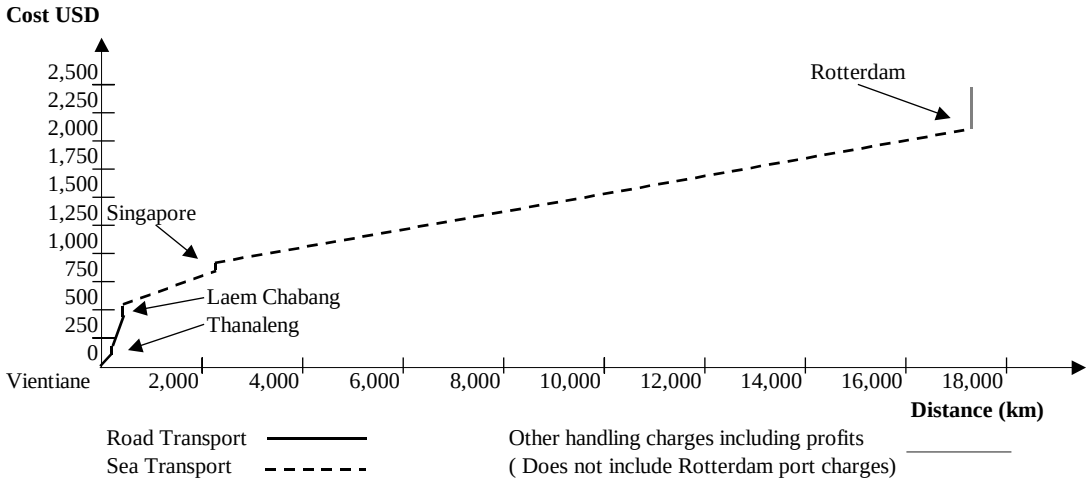
Figure** 8.7: **Variation in transit time for Vientiane-Laem Chabang



Source: The Author

The delivered price up to Rotterdam will be USD 18,243 or USD 2.32 per shirt. Transport cost represents around 16% of the delivered price of goods upon arrival in Rotterdam. Figure 8.8 illustrates the total transport cost from Vientiane to Rotterdam via Laem Chabang.

Figure** 8.8: **Vientiane-Laem Chabang-Singapore-Rotterdam



Source: The Author

The confidence index is higher than going through Bangkok port at 3.16. This is due to the fact that there is officially no tea money involved at Laem Chabang port. Crossing the border between Thanaleng (Lao PDR) and Nongkhai (Thailand) is still the weakest point of the multimodal transport corridor but as soon as the goods are in Thailand the transport system is reliable enough to warrant it's rating of "fairly confident".

The sea leg of the voyage represents 61% of the total transport cost while road transport represents 17% of the total transport cost. For the total distance, road transport is only 4% of the total journey. Other charges are also less significant when going through Laem Chabang, as there is no tea money (see Figure 8.9).

Laem Chabang is currently the most important deep-sea port in Thailand in terms of volume. The annual throughput for 1998 was at 1,424,702 TEUs [5]. The reason for Laem Chabang growth is due to the Thai Government's policy to divert traffic from Bangkok port (which is a river port located in the centre on the city) to Laem Chabang port. The operation of Laem Chabang port is also very different to that of Bangkok port. Bangkok port is operated by the Port Authorities of Thailand whereas

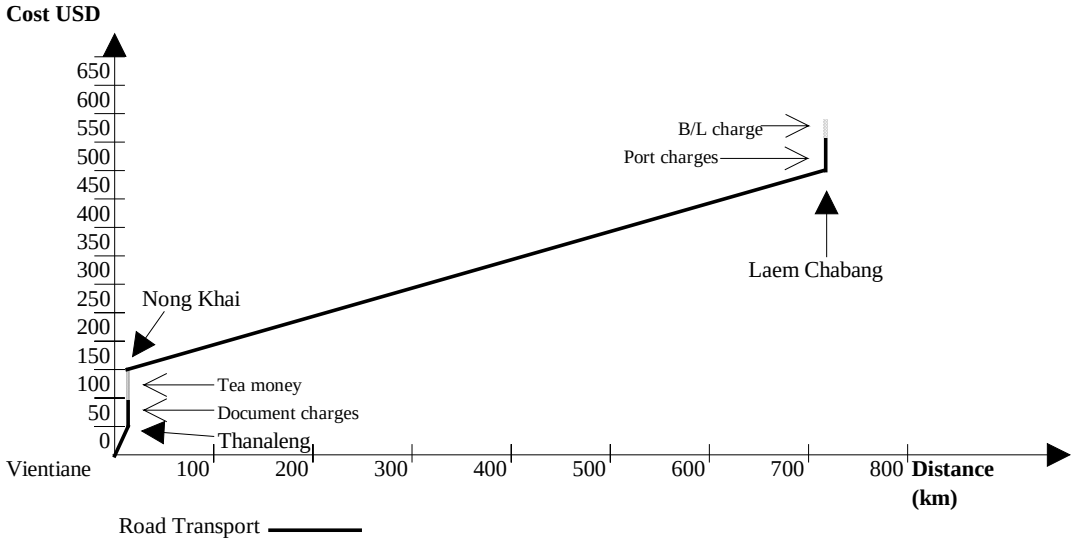
[5] Containerisation International Yearbook 1999.

Laem Chabang's operations are under private concessions. These differences in the management of both ports have been reflected in their working practices, efficiency and charges.

Laem Chabang as the most important deep-sea port has a daily feeder connection to Singapore. Main line ships also call at Laem Chabang for the Trans-Pacific trade on a weekly basis. It is worth noting that there are no mainline ships destined for Europe. All the cargo for the Middle East and Europe must be transhipped in Singapore first.

When analysing the inland leg from Vientiane to Laem Chabang, the port charges only represent 20% of the inland transport cost compared to 26% for Bangkok port. The transit charge between Thanaleng and Nongkhai (including Customs and document charges) still represents around 17% of the total inland transport cost. The trucking rate is 13% higher than when going to Bangkok at 362 USD compared to 315 USD but with no real difference in transit time.

Figure 8.9: Vientiane-Thanaleng-Nongkhai-Laem Chabang



Source: The Author

8.3.4 Route No. 4 via Lad Krabang (Thailand)

Table 8.5: Vientiane-Lad Krabang-Laem Chabang-Singapore-Rotterdam

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-NongKhai	Bridge	0.5 hour	4	8	4
	NongKhai-Lad Krabang	Road	1 day	595	315	3
	Document Charge			0	50	3
	Customs: Lao Side Thai Side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
2	Lad Krabang ICD: 1.Handling Charge 2.Gate Charge		1 day		 13 1.5	 4 4
	Lad Krabang-Laem Chabang	Rail		113	23	2
	Rail transfer charge			0	12	3
	B/L charge			0	13	3
	Laem Chabang Port: 1.Container stevedorage 2. Container wharfage 3. Lift on/off charges 4.THC			0	 21 22 17 68	 3 3 3 3
	B/L charge			0	13	3
3	Feeder Connection		1 day	0	-	4
4	Bangkok-Singapore		4 days	1,540	230	4
8	Singapore Charges**			0	59	4
9	Transhipment		1 day	0	-	4
30	Singapore-Rotterdam	Sea	21 days	15,359	1,270	4
	Other Handling Charges**			0	300	3
	TOTAL		**30/31 days**	**17,624**	**2,526.5**	**3.17**

*Assuming no delays **Include profit

Source: Compiled from industry sources

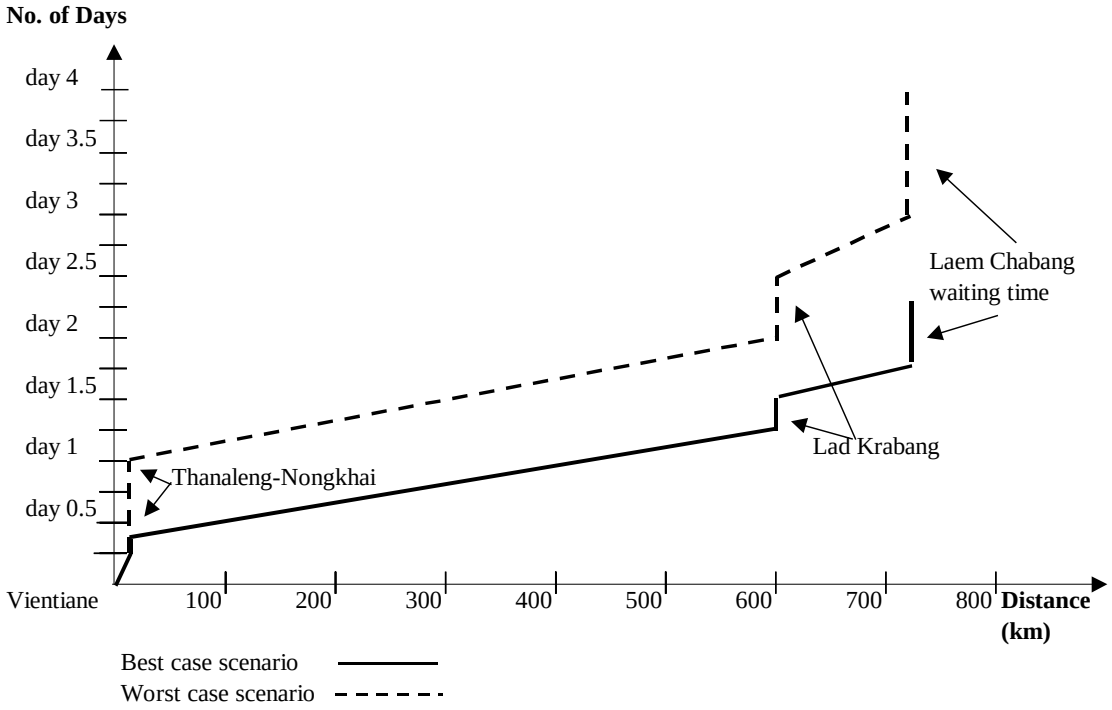
This route is via Lad Krabang which is an Inland Clearance Depot (ICD) located in the outskirts of Bangkok with a direct rail link to Laem Chabang port (see routeing map in Appendix D4). An ICD is sometime referred to as a 'dry port'. According to Beresford and Dubey (1990) 'dry ports' are specific sites to which imports and exports can be consigned for inspection by Customs and which can be specified as the origin or destination of goods in transit with documentations such as a multimodal transport bill of lading (MT B/L). Originally, the term was adopted by the UN to refer to inland customs facilities in land-locked states, but has since become more widely used to include similar facilities in maritime countries.

The ICD promotes the concept of multimodal transport, as the consignment can remain unbroken but at the same time also has far-reaching implications for infrastructure requirements and transport organisation. It relieves the port storage problems (Banomyong *et al*., 1999) but; at the same time, requires a certain minimum standard of road, rail or waterways connection between the port and the inland depot.

The use of this route is marginally more expensive than the Vientiane direct to Laem Chabang route, from 2,511 USD/TEU to 2,526.5 USD per TEU. The confidence index is marginally higher at 3.17. Even though rail transport is not as seen as reliable as road transport between Lad Krabang and Laem Chabang. This intermodal link is promoted by the State Railway of Thailand to ease road congestion to Laem Chabang port but presently the service is not reliable enough, and has diverted a lot of cargo to go by road between Lad Krabang and Laem Chabang port instead[6]. Figure 8.10 shows the two nodal links that are most often subject to delays. The first weak point is the border crossing between Lao PDR and Thailand and the second one is the intermodal connection with rail transport at Lad Krabang ICD.

[6] Road and rail freight price are very similar, with road being slightly faster.

Figure 8.10: Variation in transit time for Vientiane-Lad Krabang-Laem Chabang

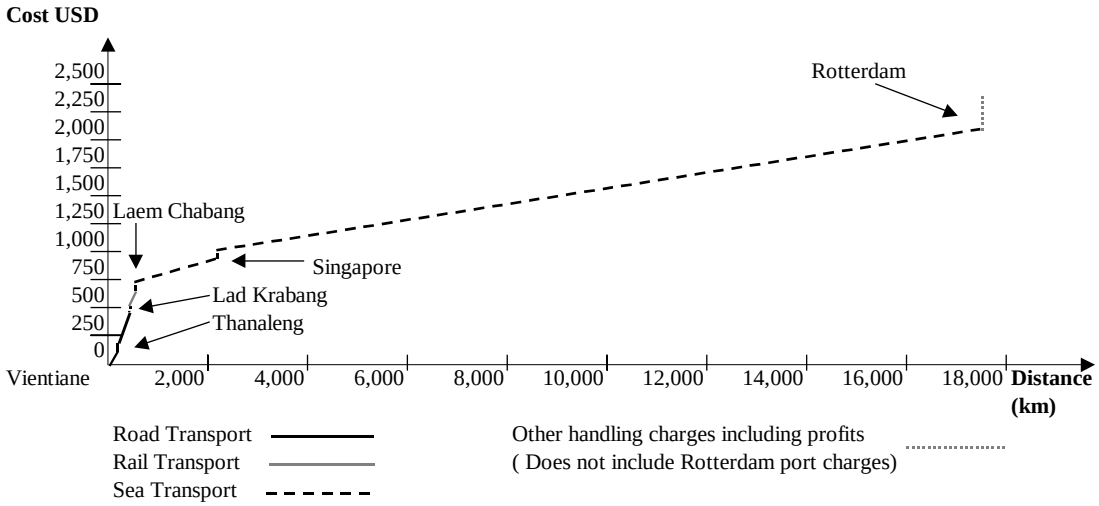


Source: The Author

The delivered price up to Rotterdam will be USD 18,258.5 or USD 2.32 per shirt. Transport cost represents around 16% of the goods costs. The total transit time for the journey to Rotterdam is the same as for via Bangkok or via Laem Chabang direct. It is worth noting that the ICD and rail freight only represent 2% of the total transport cost. The sea leg is still the most important with more than 61% of the total transport cost and 96% of the total journey (see Figure 8.11).

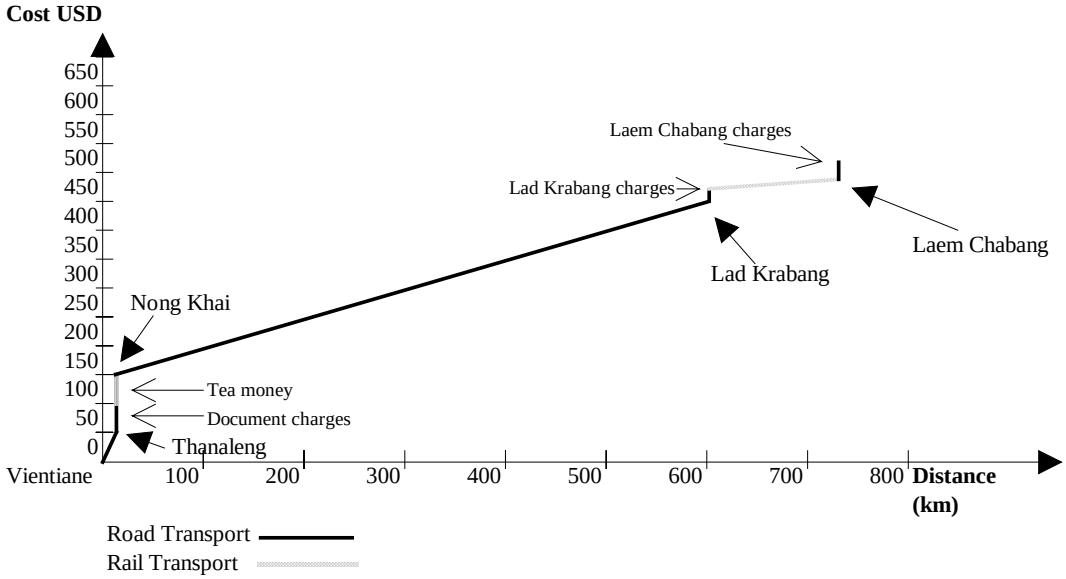
The capacity of the Lad Krabang ICD is designed to handle 400,000 TEU per annum with a modal split of 53: 47 between rail and road in 1998. Road transport to Laem Chabang is possible but emphasis is on the promotion of block train services from Lad Krabang to Laem Chabang through competitive rates (13 USD/TEU). Currently the average load factor for the train services is at 78%. Figure 8.12 gives a more precise indication of the minimal increase in cost when transiting through Lad Krabang ICD complex, even though there is a modal change in the process. The rail transport cost curve is almost horizontal when compared to the road transport cost curve.

Figure** 8.11: **Vientiane-Lad Krabang-Laem Chabang-Singapore- Rotterdam



Source: The Author

Figure 8.12: Vientiane-Thanaleng-Nongkhai-Lad Krabang-Laem Chabang



Source: The Author

8.3.5 Route No. 5 Via Port Klang (Malaysia)

Table 8.6: Vientiane-Lad Krabang-Port Klang-Rotterdam

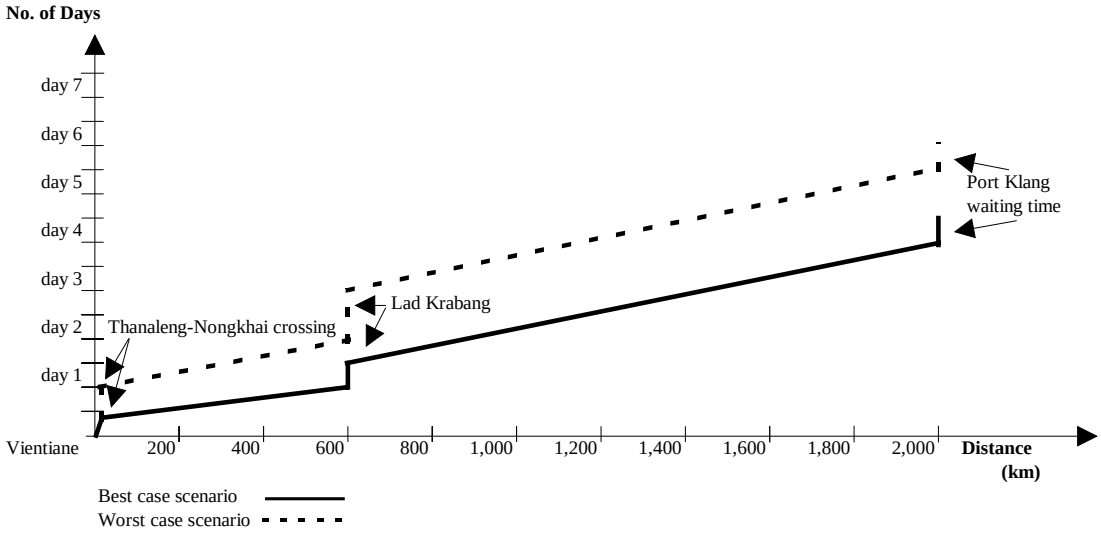
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-NongKhai	Bridge	0.5 hour	4	8	4
	NongKhai-Lad Krabang	Road	1 day	595	315	3
	Document Charge			0	50	3
	Customs: Lao Side Thai Side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
2	Lad Krabang ICD: 1.Handling Charge 2.Gate Charge 3. THC		1 day	0	 13 1.5 68	 3 3 3
	Lad Krabang-Port Klang	Rail	2.5 day	1,323	380	3
	Rail Transfer charge			0	12	3
4.5	Port Klang charges			0	37	4
5.5	Port Klang connection		1 day	0		4
26.5	Port Klang-Rotterdam	Sea	21	14,970	1,200	4
	Other charges**			0	300	3
	TOTAL		**27/28 days**	**16,905**	**2,475.5**	**3.06**

* Assuming no delays
**Including profit
Source: Compiled from industry sources

This route is the most challenging as it has only been in operation since June 1999 (see routeing map in Appendix D5). From the findings, this route seems to be the most competitive for rate and transit time. The freight rate is at 2,475.5 USD/TEU with a total transit time of 27/28 days. The confidence index is also quite good at

3.06. Even though the rail link between Thailand and Malaysia is quite new, it is now seen as quite reliable with at least one arrival and departure per day. The confidence index for rail transport is higher than between Lad Krabang and Laem Chabang because the trains are not operated by governmental agencies such as the State Railways of Thailand or KTM of Malaysia but by private concessionaires. Figure 8.13 provides an illustration of the possible variation in transit time when using the Vientiane-Lad Krabang-Port Klang route. The fastest transit time is 3.5 to 4 days for the goods to arrive in port Klang.

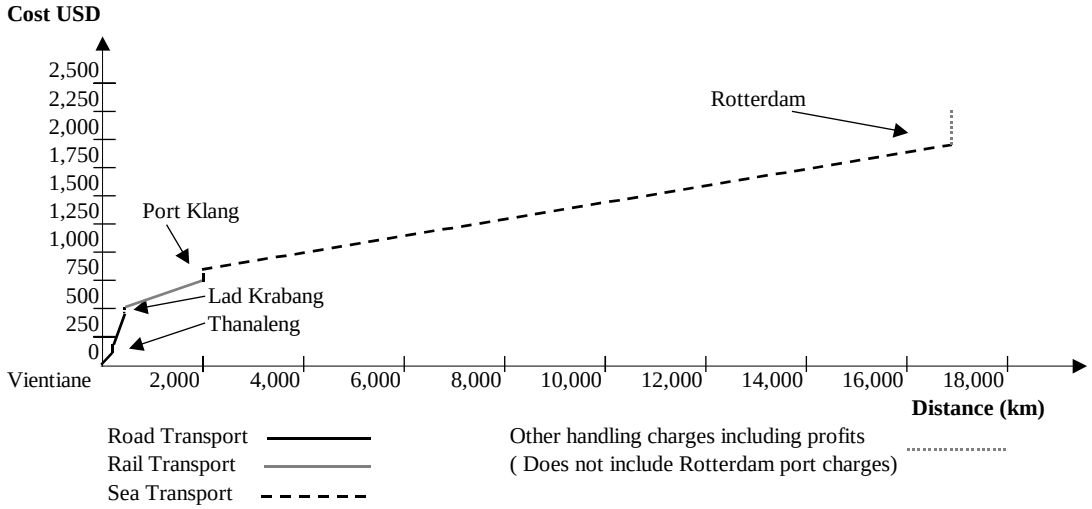
Figure 8.13: Variation in transit time for Vientiane-Port Klang (Malaysia)



Source: The Author

The delivered price up to Rotterdam will be USD 18,207.5 or USD 2.31 per shirt. Transport cost represents around 15.5% of the goods costs. Figure 8.14 gives a graphical representation of the freight movement where rail freight represents 15% of the total transport cost and 8% of the total journey, while the sea leg represents 53% of the total transport cost and 88% of the total journey. The road transport share of the total transport cost is still at 15 %, while more than 20% of the total transport cost is accounted for by other charges.

Figure 8.14: Vientiane-Lad Krabang-Port Klang-Rotterdam



Source: The Author

This Lad Krabang-Port Klang land bridge is expected to move 20,700 TEU by the end of 1999[7]. Each block train has a capacity of 50 TEU per trip and are now running 14 times a week. The shipment leaving Vientiane on Monday will arrive at Lad Krabang on Tuesday and leave for Port Klang on Wednesday. The actual transit time is just under 60 hours (~ 2.5 days) from Lad Krabang to Port Klang.

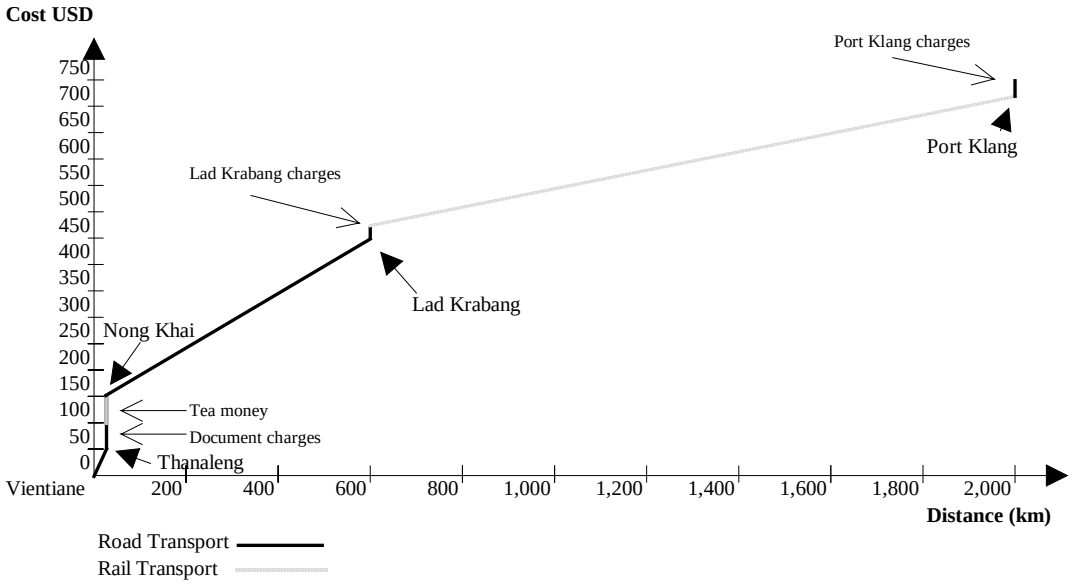
The advantage of the service is that the transit time from port Klang to Lad Krabang has been shortened compared to between five to 7 days by sea and 4 days by road. Port Klang may not be as big as Singapore port but is still an important regional hub port with a throughput of more than 1,813,348 TEU in 1998, and daily connection to the main European ports. Customs procedures for this land bridge is done at the Lad Krabang ICD so there is no need for the goods to be cleared at the Malaysian border of Padang Besar. Malaysian Customs only verify that the Thai Customs seals have not been tampered with and they will add their own seal on each container.

[7] The Star Maritime, September 6, 1999.

It is Malaysia's policy to promote port Klang as a regional load-centre and transhipment hub in order to compete with Singapore. This is done by offering special rates for cargo that transit through port Klang, from 50 USD/TEU for cargo originating from Malaysia to 37 USD for third country cargo. Free storage up to 28 days is also provided for transit cargo.

Figure 8.15 represents the inland transport cost up to port Klang. The steepness of the rail transport curve is noticeably less than the road transport curve, reflecting the cost-effectiveness of rail over the long haul route.

Figure 8.15: Vientiane-Thanaleng-Nongkhai-Lad Krabang-Port Klang



Source: The Author

8.3.6 Garment export routeing summary

Of all the alternative journeys between Vientiane and Rotterdam, the option via Port Klang achieves the most competitive costs and transit time with a reasonable confidence index (see Table 8.7).

Table 8.7: Total transport costs, transit time and confidence index

Route	**Total Transport Cost (USD)**	**Total Transit Time (days)**	**Confidence index**
1 Via Danang (Vietnam)	3,420	31/32	2.7
2 Via Bangkok (Thailand)	2,484.8	30/31	2.89
3 Via Laem Chabang (Thailand)	2,511	30/31	3.16
4 Via Lad Krabang (Thailand)	2,526.5	30/31	3.17
5 Via Port Klang (Malaysia)	2,475.5	27/28	3.06

Source: The Author

It must be noted that in reality, sea freight rates are not stable and are adjusted for 'peak season' surcharge, or other type of surcharges which may increase the freight rates compared to those obtained during this study. The ICDs in Lad Krabang also achieve significantly lower container handling costs than port terminals. According to Beresford & Savides (1997), this difference probably occurs because maritime terminals have more sophisticated handling equipment and more complex infrastructure than inland multimodal terminals.

Currently, Laotian exporters to Europe are not fully aware of the multimodal alternatives that are offered to them via Thailand. This ought be due to the fact that most of these garment exporters prefer to sell their product FOB Thanaleng or FOB Bangkok thus not controlling the transport chain. If Laotian exporters want to benefit from the various route options that are offered to them, then they will have to negotiate their international trade under 'delivered' trade terms. These 'delivered' trade terms will assist in the control of the transport chain, as Laotian exporters will be able to nominate the main carriers and choose the most suitable route.

When comparing the costs involved in these routes, sea transport is as expected the cheapest per cost/km, rail is intermediate and road transport is the most expensive (see Table 8.8). It is also worth noting that the various other charges are still a burden to the competitiveness of Laotian exports. On certain routes, such as via Bangkok, transit and local charges represent up to 10% of the total transport cost, with 'tea money ' representing 2%. The figure might not be very high, but this 2% do represent a loss in terms of the Laotian trade competitiveness.

Table 8.8: Cost of freight/km by modes of transport with confidence index

Route	Mode	Cost/km (USD)	Confidence index
1: Vientiane-Danang	Road	0.7	1
Danang-Singapore	Sea (feeder)	0.21	3
Singapore-Rotterdam	Sea (main)	0.08	4
2: Vientiane-Bangkok	Road	0.55	3
Bangkok-Singapore	Sea (feeder)	0.15	4
Singapore-Rotterdam	Sea (main)	0.08	4
3: Vientiane-Laem Chabang	Road	0.55	3
Laem Chabang-Singapore	Sea (feeder)	0.15	4
Singapore-Rotterdam	Sea (main)	0.08	4
4: Vientiane-Lad Krabang	Road	0.59	3
Lad Krabang-Laem Chabang	Rail	0.2	2
Laem Chabang-Singapore	Sea (feeder)	0.15	4
Singapore-Rotterdam	Sea (main)	0.08	4
5: Vientiane-Lad Krabang	Road	0.59	3
Lad Krabang-Port Klang	Rail	0.28	3
Port Klang-Rotterdam	Sea (main)	0.08	4

Source: The Author

Part A has demonstrated that the best possible route for Laotian garment exporters to Europe is via Port Klang in Malaysia, both on total transport costs and transit time. Table 8.9 summarises the transport cost per shirt according to the alternative routeing. Route 2 and 5 have the same transport cost but route 5 has a faster transit time with a higher confidence index.

Table 8.9: Cost of transport (per shirt) to Rotterdam

Route	Cost of shirt	Cost of transport per shirt	Total cost (shirt & transport)
1 Via Danang	USD2	USD 0.43	USD 2.43
2 Via Bangkok	USD 2	USD 0.31	USD 2.31
3 Via Laem Chabang	USD 2	USD 0.32	USD 2.32
4 Via Lad Krabang	USD 2	USD 0.32	USD 2.32
5 Via Port Klang	USD 2	USD 0.31	USD 2.31

Source: The Author

A closer analysis of transport cost per shirt reveals that the highest transport costs is via Danang in Vietnam with USD 0.43 per shirt. The four other routeing alternatives achieve very similar transport costs. Route 2 via Bangkok in Thailand with transhipment through Singapore and Route 5 via Port Klang in Malaysia achieve the same transport costs even though there are intermodal transfers at Lad Krabang ICD and Port Klang in Malaysia with the use of rail transport. The cost of transport for Route 2 and Route 5 is at USD 0.31 per shirt. Route 3 and Route 4 has the same transport cost per shirt at USD 0.32 but the Route 4 include intermodal transfers at Lad Krabang ICD (Thailand) and Laem Chabang port with the use of rail transport.

It is interesting to note that the prices for Route 2 to Route 5 are almost the same (there is a USD 0.01 difference) and that the decision-making relating to routeing will not only be based on costs but also on the transit time offered and the confidence index that each multimodal transport corridor achieve. These findings suggest that no matter the export routeing alternative (apart via Vietnam) chosen there is almost no difference in the multimodal transport corridors in terms of price.

PART B: WINE IMPORT ROUTEING

Cargo description: 1 x 20 foot container stuffed with 23 pallets containing 600 bottles of wine each (or 13,800 bottles), weighting 16,560 kg. The container was consolidated at the port of Marseilles. It is assumed that the wine was bought FOB Marseilles at USD 39,000 per TEU or USD 2.83 per bottle (this is the average value per bottle).

Existing alternative routes and modal combinations for the movement of unitised freight between the port of Marseilles and Vientiane are summarised here below in table 8.10.

Table 8.10 Routeing alternatives for freight, Marseilles (France)-Lao PDR

Route	**Origin: France**	**Mode**	**Transhipment**	**Mode**	**Transhipment /Intermodal transfer**	**Mode**	**Destination: Lao PDR**
6	Marseilles	Sea	Singapore	Sea	Danang (Vietnam)	Road	Vientiane
7	Marseilles	Sea	Singapore	Sea	Bangkok (Thailand)	Road	Vientiane
8	Marseilles	Sea	Singapore	Sea	Laem Chabang (Thailand)	Road	Vientiane
9	Marseilles	Sea	Singapore	Sea	Laem Chabang & Lad Krabang (Thailand)	Rail & Road	Vientiane
10	Marseilles	Sea	Port Klang (Malaysia)	Rail	Lad Krabang (Thailand)	Road	Vientiane

Source: Compiled from industry sources

8.3.7 Route No. 6 Via Danang (Vietnam)

Table 8.11: **Marseilles-Singapore-Danang-Vientiane**

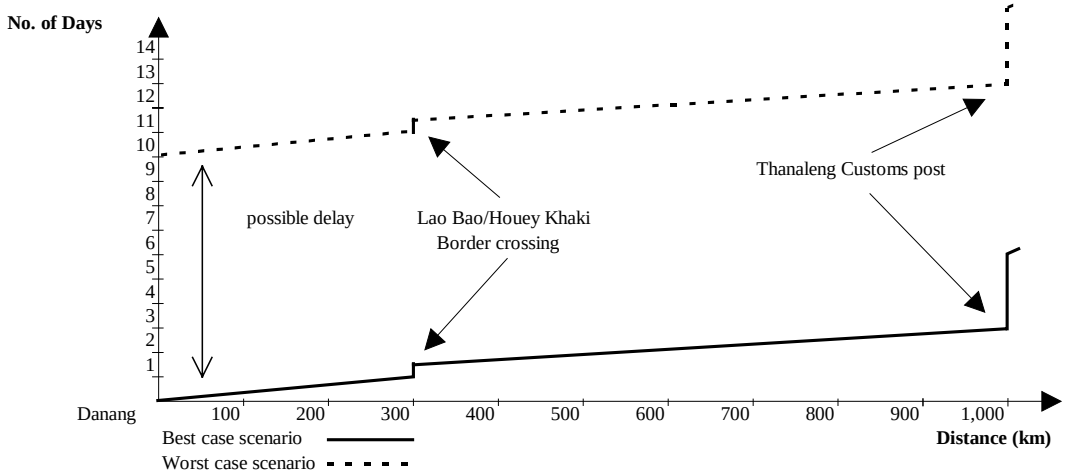
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence Index
1	Marseilles-Singapore	Sea	18 days	12,092	600	4
	Singapore charges			0	59	4
19	Singapore tranship		2 to 3 days	0	-	4
22	Singapore-Danang	Sea	4 days	1,910	400	3
	Danang charges			0	20	3
	THC			0	1	
	Lao Bao-Houey Khaki Customs		2-3 hours	0	220	1***
26	Danang-Thanaleng	Road	3 days	1,047	750	1
29	Thanaleng Customs post		3 to 5 days			2.5***
	Thanaleng-Vientiane		1 hour	13	47	3
	Other Handling Charges**			0	700	2
	TOTAL		**32/34 days**	**15,062**	**2,797**	**2.75**

*Assuming no delays
**Include profit and Thanaleng customs post charges
***This confidence rating may be improve with the offer of financial incentives
Source: Compiled from industry sources

Route No. 6 via Vietnam is essentially the same as Route 1, especially for the feeder connection and the inland leg (see routeing map in Appendix D6). The main difference is that the port of origin is Marseilles port and that the goods are moving into Vientiane in Lao PDR. The total transit time for this route is between 32/34 days. The main sea leg from Marseilles to Singapore represents around 51% of the total transit time while at the same time representing 80% of the total distance from Marseilles to Vientiane. This transit time is only valid if no delays occur while

transiting through Vietnam. If there are delays, then the inland leg from Danang to Vientiane can represent up to 35% of the new transit time of 46/48 days[8]. According to industry sources, these delays are usually between 10 days to 2 weeks but a delay of up to a month is not uncommon. Figure 8.16 illustrates the situation with regards to variation in transit time from Danang to Vientiane. Due to the nature of the imported goods, after crossing the Lao Bao-Houey Khaki border, the goods must first go to Thanaleng Custom's post (near Vientiane) where it will take usually 3 to 5 days for the process of import clearance if all the documents are in order. While waiting for the import clearance, the owner of the goods is charged USD 10/TEU per day for storage. He will also be charged for the un-stuffing of the container in the compound at USD 30/TEU. This fee includes the transfer of the goods on local trucks for the final journey to the importer's warehouse in Vientiane. More than USD 60 is paid to facilitate the routeing of documents while processing import clearance to Customs officers, stevedores, etc.[9]. After customs clearance, a gift is also expected from the owner of the goods such as a few bottles of wines to Customs officers in charge of checking and valuating the goods.

Figure 8.16: Variation in transit time from Danang to Vientiane



Source: The Author

The main sea leg from Marseilles to Singapore and the feeder connection is felt as quite reliable by the respondents with an average confidence index of 3.75. This

[8] Instead of representing around 10% of the total transit time in case of no delays (32/34 days).

means that the goods will arrive at Danang usually within 24 days. The delays will most probably occur when the goods arrive at Danang port. Before the goods can move out of the port of arrival all the documents and transit permit must be in order. The procedure for import cargo is similar to the procedure for export cargo. When all the documents are ready, the goods can then move out of Danang port. The border crossing at Lao Bao-Houey Khaki is not seen as a problem as most of the formalities will have been completed in Danang for transit cargo. Vietnamese customs officers will usually escort the cargo up to the border. The confidence index for the inland leg is very low at 1; this is considered the main problem area when transiting via Vietnam with poor infrastructure, bureaucracy and pilferage identified as the main sources of low confidence.

Many Lao traders and logistics/transport service providers do not trust Vietnamese and Lao bureaucratic administration. This is a general feeling that has been reflected when these two countries were given a D rating for anti-corruption by Asiaweek[10]. The confidence index for the whole route is 2.75 but only because the people interviewed felt confident about the sea leg as the least likely to create problems.

The total transport cost from Marseilles to Vientiane is USD 2,797. The main sea leg from Marseilles to Singapore is very competitive at around USD 600 per TEU. This is because during the period of the research, there was a strong imbalance of containers' movement out of the Far East. All the shipping lines had to reposition their containers in the Far East to service the surge in exports due to the regional currency depreciation that followed the regional economic crisis. Another effect of the Asian economic crisis was that many countries almost stopped importing goods from Europe and North America thus hindering the movement of containers to the Far East. When taken into consideration, these two factors contributed to the very low freight rates offered by shipping lines. Some freight was considered better than moving empty containers at lost.

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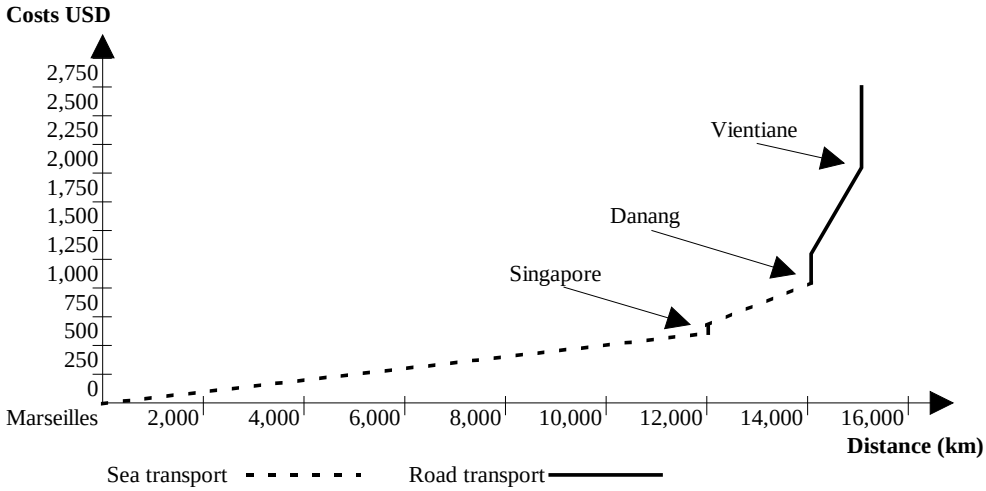
[9] Gifts of similar value are also accepted

[10] "How Asia is governed", in: *Asiaweek*, August 18-25, 2000, pp. 52-53.

Figure 8.17 shows the cost curve from Marseilles to Vientiane. It is interesting to note that the freight charges from Marseilles to Singapore only represent 21% of the total transport cost with a cost of USD 0.05 per TEU/km. The freight charge by feeder vessel represents up to 15% of the total transport cost with a cost of USD 0.21 per TEU/km, while the distance from Singapore to Danang is only 12% of the total distance. The inland leg cost takes up more than 61% of the total transport cost. These ratios are well represented in the model, especially when assessing the steepness of the curve for each mode and means of transport.

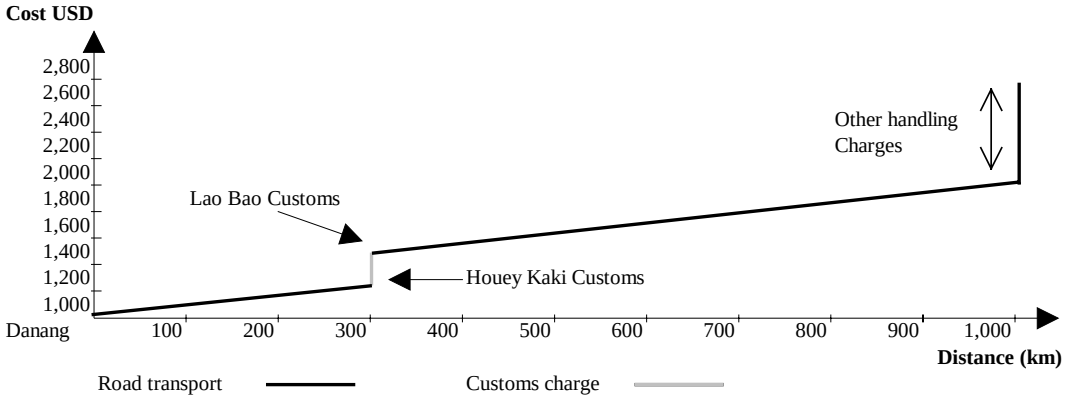
Figure 8.17: Marseilles-Singapore-Danang-Vientiane (Route 6)



Source: The Author

The inland leg from Danang to Vientiane is represented graphically in Figure 8.18 here below. The y-axis begins at USD 1,000 because when the goods arrive at Danang port, the transport cost already adds up to USD 1,059 per TEU. Due of the various uncertainties from Danang to Vientiane, the other handling charges (which includes profit) comprise 41% of the inland transport cost. The Customs charge represents 13% of the inland transport leg. Compared to the distance, the inland leg is the most expensive leg of the whole journey at a cost of USD 1,738 for 1,060 km or USD 1.63 per km.

Figure 8.18: Danang-Houey Khaki-Lao Bao-Vientiane



Source: The Author

According to Lao importers, this route is almost never used. It is mostly used for government cargo or certain project cargo to the South of the country near Savannakhet province. Private importers are afraid of pilferage and the uncertainties of transiting through Vietnam. In practice, when wine is imported in Lao PDR, this route is never taken. If this route is chosen, the delivered price up to Vientiane will be USD 41,797 or USD 3.03 per bottle. Transport cost will, therefore, represent around 7% of the value of the wine "delivered" to Vientiane.

8.3.8 Route No. 7 Via Bangkok (Thailand)

Table 8.12: **Marseilles-Singapore-Bangkok-Vientiane**

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence Index
1	Marseilles-Singapore	Sea	18 days	12,092	600	4
	Singapore charges			0	59	4
19	Singapore tranship		1 day	0	-	4
20	Singapore-Bangkok	Sea	3 to 4 days	1,540	200	4
24	Bangkok charges**				148.8***	2.3****
	B/L charge				13	3
	Lao transit documents		2 to 3 days		12.5	2
	Bangkok-Nongkhai	Road	1 day	633	1,500	3
28	Nongkhai-Thanaleng	Bridge	0.5 hour	4	8	4
	Transit Customs charge****				39	2
	Thanaleng Customs post		3 to 5 days			2.5****
	Thanaleng-Nongkhai	Road	1 hour	13	47	3
	Other Handling charges*****				300	3
	TOTAL		**31/33 days**	**14,282**	**2,927.3**	**3.13**

* Assuming no delays
** For a breakdown of charges at Bangkok port please refer to Table 8.3
*** Including the usual amount of tea-money to Customs and port officers
**** Personal connection and financial incentives can increase confidence index
***** Include profit and Thanaleng customs post charges
Source: Compiled from industry sources

Route 7 (see routeing map in Appendix D7), via Bangkok (Thailand), is the preferred transit route for import cargo into Lao PDR with a confidence index of 3.13. Upon

vessel arrival in Bangkok port, the goods will be transferred to a dedicated warehouse for transit cargo destined for Lao PDR. This dedicated warehouse is in the vicinity of Bangkok port just opposite of the Customs Department. Import procedures must be cleared before the goods are moved to the dedicated warehouse. In Thailand, import procedures are very cumbersome, even for cargo destined for the local Thai market. Table 8.13 summarises the average amount of time required for the release of imported goods (be it for transit or local consumption).

Table 8.13 Average time required for import clearance & release of goods

Day	Activities	Customs	Average Time (Hours)	Percentage
1 **2** **3** **4** **5**	-Preparation of documents for import clearance	-Customs formalities & duty assessment	118.62 1.7	60.68 0.87
6	-Preparation of document for payment of duty	-Payment of duty	40.65 0.16	20.80 0.09
7	-Preparation for goods examination -Port Authority release goods	-Manifest examination -Release of goods	20.25 0.17 2.16 0.5	10.36 0.09 1.10 0.26
8	-Preparing for goods to move out of port	-Check post	11.13 0.09	5.69 0.06
TOTAL			**195.43***	**100%**

* Or 8.1 days

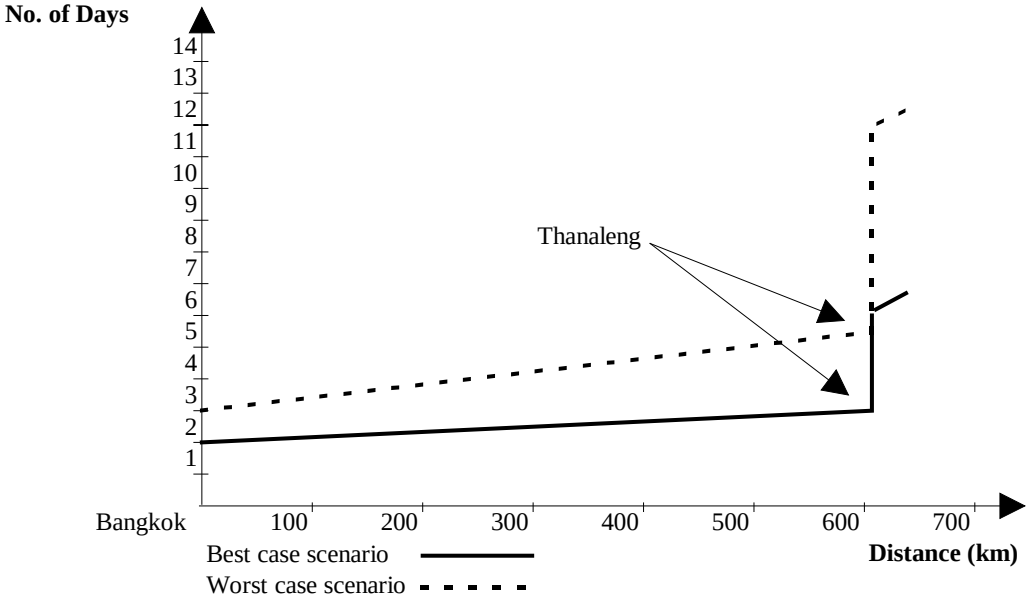
Source: Adapted from Thai Chamber of Commerce (1999)

The time taken by document preparation has the highest ratio of the total time for the release of imported goods. After the goods are release from Bangkok port they will be moved to the dedicated warehouse for transit cargo where the goods will have to stay at least 2 to 3 days while waiting for consular documents from the Lao Embassy in Bangkok. The purpose of these documents is to check that the goods imported are really destined for Lao PDR. A major problem with going through Bangkok is that Thai Customs open all containers in transit to check if the goods are in conformity

with the packing list. Many Lao importers have complained about this practice but to no avail as Thai Customs claim that they need to verify all Lao cargo. One interviewed Lao wine merchant, has a very strong suspicion that the real reason for these checks is to pilfer a few of his wine bottles, as the numbers are always short compared to the packing list when the container is opened in Thanaleng.

If there are no major delays, the usual total transit time for this route is around 31 to 33 days. According to Lao importers, the fastest transit time that has been done is 28 days while it is not unusual to wait up to 45 days. The transit time will depend a lot on the information provided in invoices, packing lists, insurance certificate, etc. The main sea leg and feeder connection are considered the most reliable component of the route with a combined confidence index of 4. Figure 8.19 illustrates the possible variations in transit time from Bangkok to Vientiane.

Figure 8.19 Variation in transit time from Bangkok to Vientiane



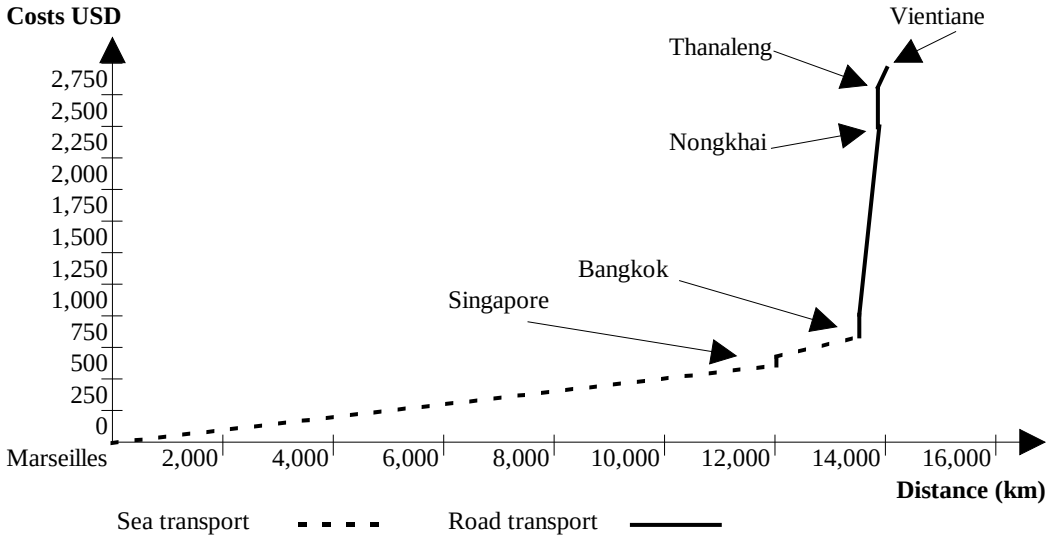
Source: The Author

The total transport cost via Bangkok is around a little more than USD 100 higher than via Danang at USD 2,927.3. The sea transport cost only represents 30% of the total transport cost. The most expensive transport cost is road transport at USD 1,500 from Bangkok to Thanaleng or USD 2.37/TEU per km. The rate is expensive because all

the trucks going to Thanaleng must come back into Thailand empty[11]. These trucks can wait in Nongkhai, on the Thai side, but with such low export volumes from Lao PDR the majority of trucks go back immediately. Many Lao government officials believe that the freight rate for Bangkok-Thanaleng is artificially inflated because there is no competition. The problem lies more with the extreme imbalance of Lao PDR foreign trade, as trucking companies when servicing Lao trade have to include the freight charges for an empty return. Other types of charges take up to 20% of the total transport cost with charges at Bangkok port representing 5% of the total transport cost.

Figure 8.20 illustrates the transport cost from Marseilles to Vientiane via Bangkok where the road transport curve is almost vertical due to the high freight rate. Figure 8.21 represents the cost increase during the inland leg from Bangkok to Vientiane.

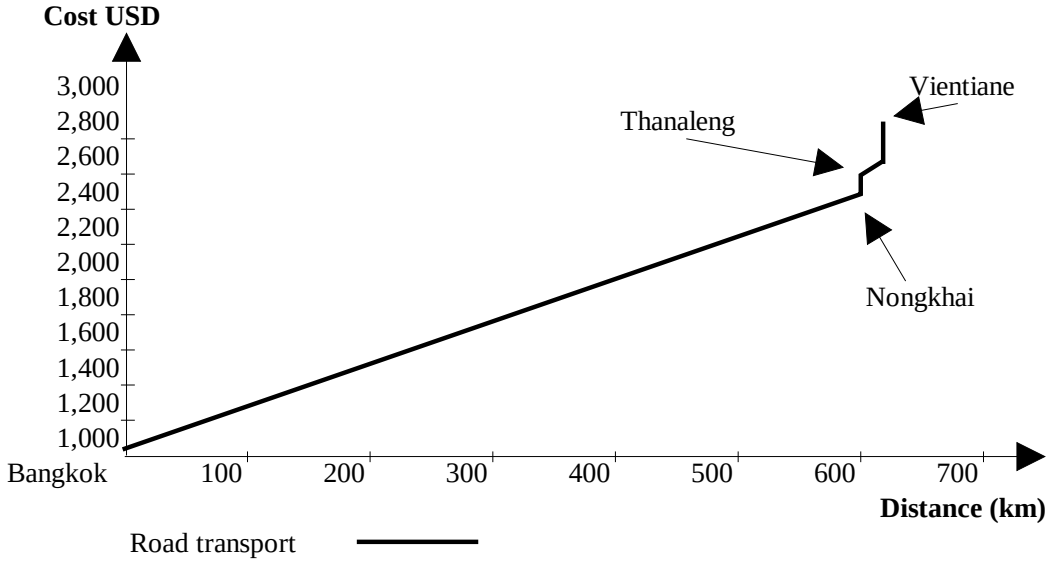
Figure 8.20: Marseilles-Singapore-Bangkok-Vientiane (Route 7)



Source: The Author

Figure 8.21: Bangkok-Nongkhai-Thanaleng-Vientiane

[11] Except if these trucks belong to the transit traffic franchisees such as the ETO, Ubonsahatham, RCL, TL Enterprise, the SRT, and have return freight.



Source: The Author

When selecting the route via Bangkok, the delivered price up to Vientiane will be USD 41,927.3 per TEU or USD 3.04 per bottle. The transport cost represents around 7.5% of the goods costs. The transport price increase for this route is marginal if compared to the route via Vietnam at only USD 0.01 increases per bottle.

8.3.9 Route No. 8 Via Laem Chabang (Thailand)

Table 8.14: Marseilles-Singapore-Laem Chabang-Vientiane

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence Index
1	Marseilles-Singapore	Sea	18 days	12,092	600	4
	Singapore charges			0	59	4
19	Singapore tranship		1 day	0	-	4
20	Singapore-Laem Chabang	Sea	3 to 4 days	1,540	200	4
24	Laem Chabang charges				128**	3
	B/L charge				13	3
	Lao transit documents		2 to 3 days		12.5	2
	Laem Chabang-Nongkhai	Road	1 day	714	1,500	3
28	Nongkhai-Thanaleng	Bridge	0.5 hour	4	8	4
	Transit Customs charge				39	2***
	Thanaleng Customs post		3 to 5 days			2.5***
	NongKhai-Vientiane	Road	1 hour	13	47	3
	Other Handling charges****				300	3
	TOTAL		**31/33 days**	**14,363**	**2,906.5**	**3.19**

*Assuming no delays
** For a breakdown of cost at Laem Chabang port please refer to Table 8.4
*** Personal connection and financial incentives can increase confidence index
****Include profit and Thanaleng customs post charges
Source: Compiled from industry sources

Route 8 is via Thailand's major deep-sea port Laem Chabang (see routeing map in Appendix D8). This route has a slightly higher confidence index than via Bangkok port as Laem Chabang port is seen as a "graft free" port. This is reflected with a confidence rating for the whole journey of 3.19. The same administrative problems are in existence for import or transit via this route.

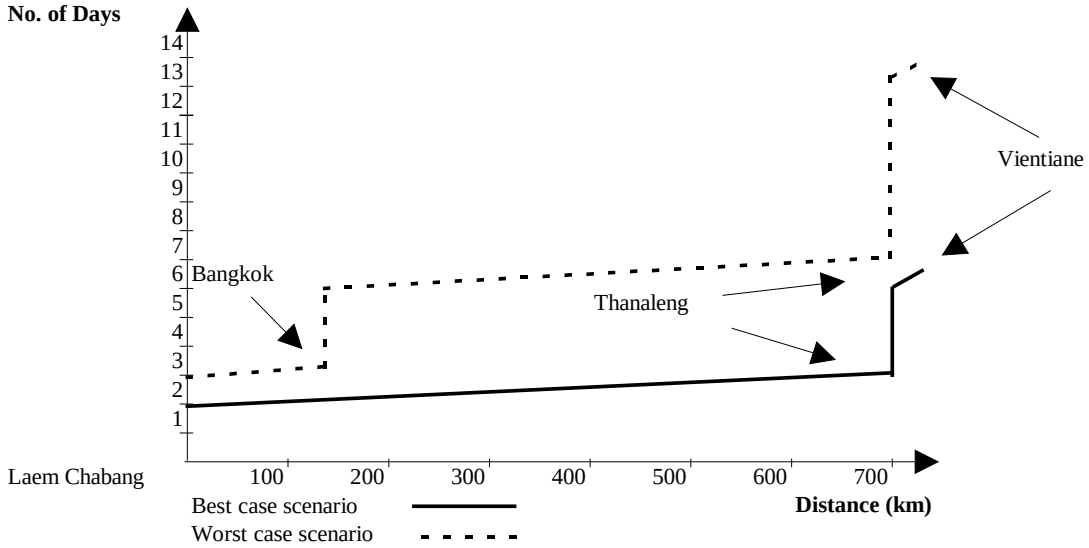
The only difference in transit time with the route via Bangkok will depend on how long the goods will be waiting for their consular documents from the Lao embassy in Bangkok. If the goods, upon arrival at Laem Chabang port are not cleared for transit to Lao PDR, within 2 days, then the goods will have to be moved under Thai Customs escort to the dedicated warehouse for Lao transit cargo in the vicinity of Bangkok port[12]. The transport of the containers from Laem Chabang to Bangkok port is quoted at around USD 40 per TEU [13]. The transit time from Laem Chabang to Bangkok port is 2 hours. There the cargo will wait for the consular documents for transit to Lao PDR. This dedicated transit warehouse also offers 7 days free storage instead of the usual 3 free storage days at Bangkok port or Laem Chabang port. It is often not worth the risk for goods to be stranded at Laem Chabang port due to the possible delays involved

Figure 8.22 illustrates graphically the possible variation in transit time from Laem Chabang to Vientiane. The best-case scenario means that goods will arrive for import Customs clearance in Thanaleng within 3 days while the worst scenario also includes delays in the Lao transit warehouse in Bangkok. In the worst case, it can take two weeks before the goods arrive at destination in Vientiane from Laem Chabang even though the journey only represents 5% of the total distance. If this situation happens, it will take between 37 to 40 days for the goods to arrive from Marseilles to Vientiane.

[12] In the early 1990s, transit procedures was even more restrictive with all Lao bound cargo upon arrival, in Thailand, transferred immediately to the dedicated transit warehouse no matter the port of arrival. All these transfers were made under Thai Customs escort. Only project cargo were exempt from that restriction

[13] This eventuality is included in the Other Handling Charges.

Figure 8.22 Variation in transit time from Laem Chabang to Vientiane



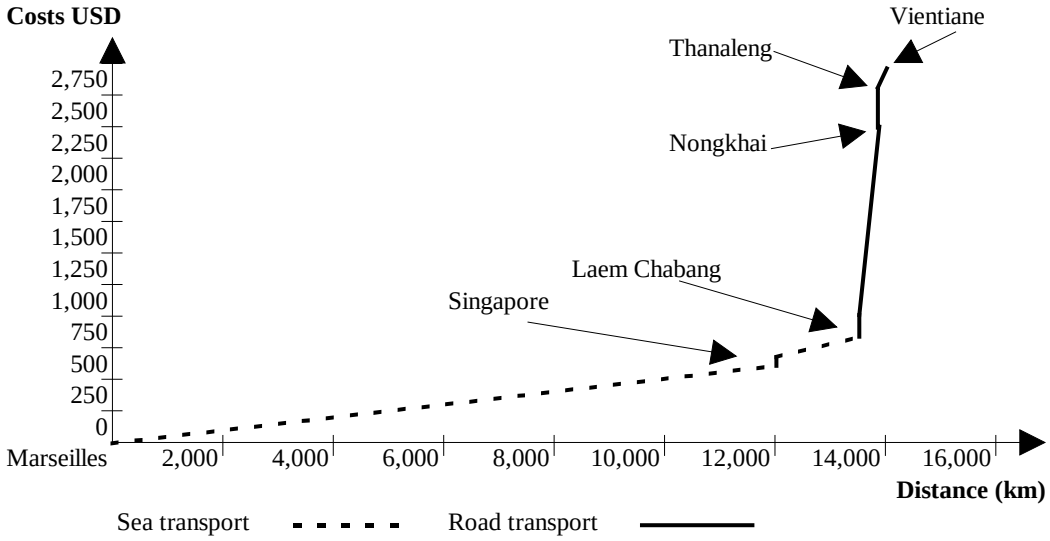
Source: The Author

The total transport cost for this route is USD 2,906.5 per TEU, which is marginally lower than through Bangkok port. This is because tea-money is not paid at the port of arrival. Lao importers still prefer the route via Bangkok as storage charges can be better controlled (7 free days) and rectification of Lao consular documents can be made more easily because of the proximity of the Lao embassy. For project cargo, Laem Chabang is the preferred port of arrival as the cargo will be able to bypass Bangkok and its notorious congestion problems. The transport cost from Laem Chabang to Nongkhai is the same as from Bangkok to Nongkhai even though the distance is slightly longer at 714 km. This also means that the transport cost per km is cheaper at USD 2.1/TEU. Route 7 (via Bangkok) and route 8 (Via Laem Chabang) are almost identical both in terms of transit time and transport cost. It is only when delays occur during the voyage that Bangkok port seems to be a better option.

Lao traders may feel more confident about using the facilities at Laem Chabang port than Bangkok port but due to the difficulty in document processing for import and transit cargo they prefer to import via Bangkok. The infrastructure " hardware" might be better at Laem Chabang but the "software" problem solving capabilities are more

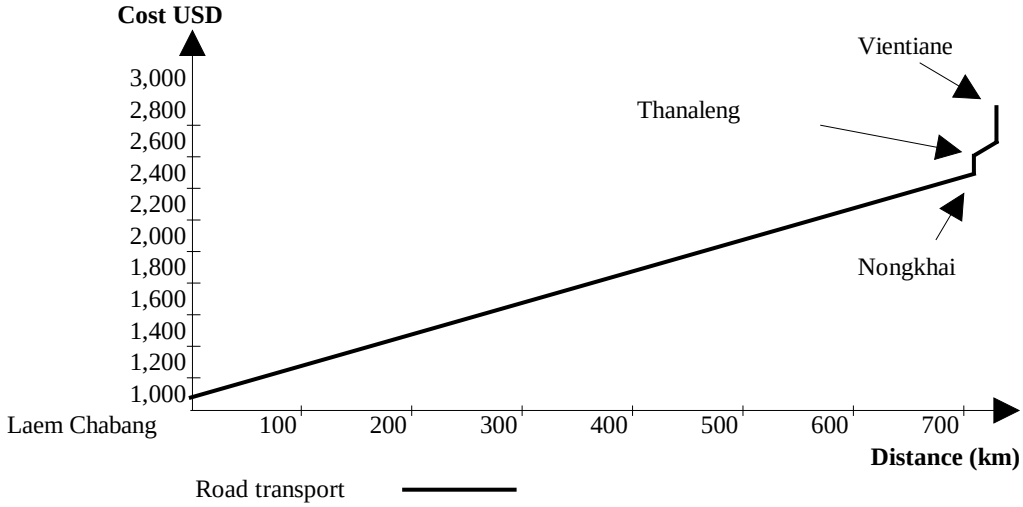
efficient in Bangkok. Figure 8.23 and Figure 8.24 represents the total cost of transport from Marseilles to Vientiane and the inland leg from Laem Chabang to Vientiane respectively. The delivered price up to Vientiane will be USD 49,906.5 per TEU or 3.03 per bottle. The transport costs up to Vientiane takes around 7.45% of the wine costs. The inland road transport is still the most expensive leg of the journey compared to the sea voyage.

Figure 8.23: Marseilles-Singapore-Laem Chabang-Vientiane (Route 8)



Source: The Author

Figure 8.24: Laem Chabang-Nongkhai-Thanaleng-Vientiane



Source: The Author

8.3.10 Route No. 9 Via Laem Chabang & Lad Krabang (Thailand)

Table 8.15: **Marseilles-Singapore-Laem Chabang-Lad Krabang-Vientiane**

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence Index
1	Marseilles-Singapore	Sea	18 days	12,092	600	4
	Singapore charges			0	59	4
19	Singapore tranship		1 day	0	-	4
20	Singapore-Laem Chabang	Sea	3 to 4 days	1,540	200	4
24	Laem Chabang charges**				128*	3
	B/L charge				13	3
	Lao transit documents		2 to 3 days		12.5	2
	Laem Chabang-Lad Krabang	Rail	3 hours	113	23	2
	Rail transfer charges				12	3
	Lad Krabang ICD charges**		1 day		14.5	4
	Lad Krabang-Nongkhai	Road	1 day	595	1,500	3
28	Nongkhai-Thanaleng	Bridge	0.5 hour	4	8	4
	Transit Customs charge				39	2***
	Thanaleng Customs post		3 to 5 days			2.5****
	Thanaleng-Vientiane	Road	1 hour	13	47	3
	Other Handling charges****				300	3
	TOTAL		**33/35 days**	**14,357**	**2,956**	**3.15**

* Assuming no delays

** For a breakdown of cost at Laem Chabang port and Lad Krabang ICD please refer to Table 8.5

*** Personal connection and financial incentives can increase confidence index

**** Include profit and Thanaleng customs post charges

Source: Compiled from industry sources

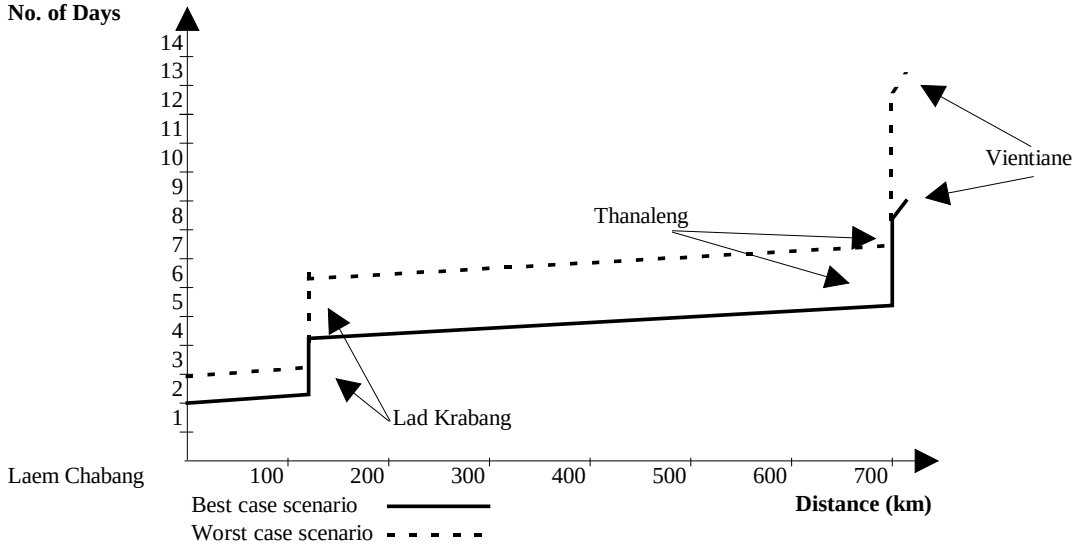
Route No. 9 (see routeing map in Appendix D9) via Laem Chabang and Lad Krabang is theoretically possible but Laotian importers have never used it. This route has a total confidence index of 3.15, which is in the same range as the other routes via Thailand. The transport cost is also the highest at USD 2,956 per TEU but it must not be forgotten that at least three intermodal transfers had occurred before arrival in Vientiane: from the goods being unloaded off the feeder vessel, to the train, and then on to the truck for the journey into Lao PDR. An increase of USD 50 for using another mode of transport does not affect the total transport cost significantly, especially for this type of medium to high value commodity.

The main drawback for this route, apart from the usual cumbersome import and transit procedures in Thailand, is the delays while waiting for inland intermodal connection to occur. It may take 3 hours for the train to complete the journey from Laem Chabang to Lad Krabang but the State Railway of Thailand is not renown for its punctuality and conformance to its published schedule. This is why the rail connection from Laem Chabang to Lad Krabang was only given a confidence index of 2. As a precaution, the majority of logistics operators in Lad Krabang also rely on trucking companies to transport their cargo to Lad Krabang ICD. When questioned, these logistics operators were willing to assign a confidence rating of 3 to the trucking service serving the Laem Chabang-Lad Krabang route. Containers that are destined for Lad Krabang ICD do not have to be checked at Laem Chabang port if their seals are intact upon arrival. After arriving at Lad Krabang ICD, the goods will have to be checked and verified by Thai Customs before being release for the journey to Lao PDR. These procedures usually take at least 1 working day to complete.

In a theoretical “nightmare” scenario, where the documentation is not ready or missing, the goods will have to be transferred to the dedicated transit warehouse near Bangkok Port under Customs escort at a cost of around USD 40 to USD 50 per TEU to wait for the transit documents. Under this scenario, the total transit time can take up between 45 to 50 days for the goods to arrive at the final destination.

Figure 8.25 describes the possible variation in transit time from Laem Chabang to Vientiane via Lad Krabang. In the best-case scenario, the wine will arrive for import clearance at Thanaleng within 5 days and may be at the importer's warehouse within 8 days. In the worst case, it can take 8 to 9 days for the goods to arrive at Thanaleng even though the distance from Lad Krabang to Thanaleng only represents 4% of the total distance from Marseilles to Vientiane.

Figure 8.25 Variation in transit time from Lad Krabang to Vientiane



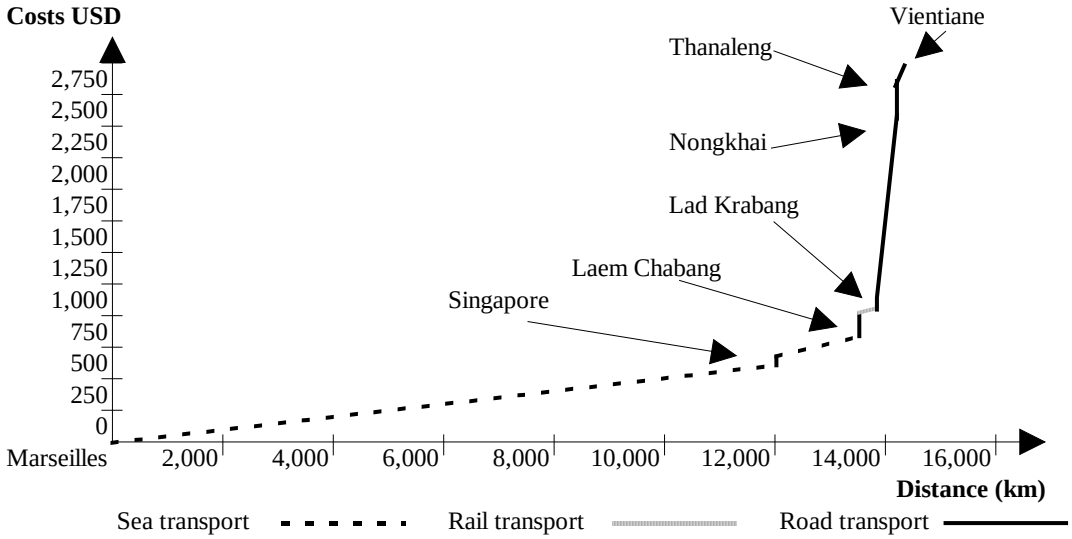
Source: The Author

The marginal increase in transport cost can make this route attractive to Lao importers if the confidence index was higher than for the other alternative routes via Thailand or Vietnam. The transit time is also longer by a couple of days, even in the best-case scenario. According to the Lao importers interviewed, transiting through Lad Krabang ICD might be a possibility if the intermodal connection from Laem Chabang is efficient and reliable but also if they had more knowledge and information about the types of services offered in an ICD[14].

Figure 8.26 and Figure 8.27 are graphic illustrations of the total cost of the goods transported from Marseilles to Vientiane and the inland leg from Laem Chabang via Lad Krabang to Vientiane respectively. The rail transport curve steepness is almost

horizontal while the road transport curve is almost vertical. Road transport is still the most expensive mode of transport no matter the distance covered. Rail transport cost only stand for 1.5% of the inland transport cost or 0.9% of the total transport cost while constituting 15.5% of the inland distance from Laem Chabang to Vientiane. The delivered price up to Vientiane will be USD 41,956 per TEU or USD 3.04 per bottle. The transport cost from Marseilles to Vientiane, if the route via Lad Krabang is used, will correspond to 7% of the total cost of goods upon arrival in Vientiane.

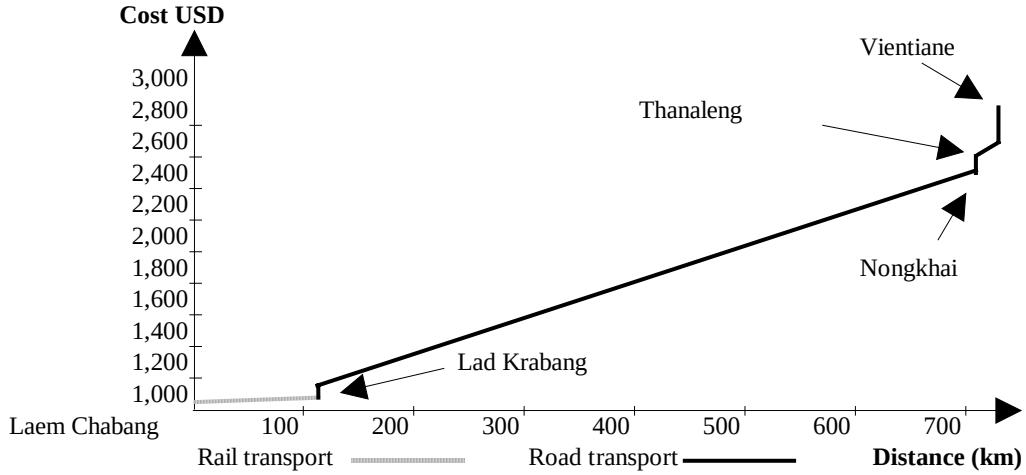
***Figure** 8.26: **Marseilles-Singapore-Laem Chabang-Lad Krabang-Vientiane** (**Route** 9)*



Source: The Author

[14] Some Lao exporters were also unaware of the ICD concept and functions.

Figure** 8.27: **Laem Chabang-Lad Krabang-Nongkhai-Vientiane



Source: The Author

8.3.11 ***Route No****. 10* ***Via Port Klang*** *(****Malaysia****)* ***& Lad Krabang*** *(****Thailand****)*

Table 8.16: **Marseilles-Port Klang-Lad Krabang-Vientiane**

Day	**Leg**	**Mode**	**Transit time***	**Distance (km)**	**Cost (USD)**	**Confidence Index**
1	Marseilles-Port Klang	Sea	15 days	11,703	550	4
	Port Klang charges			0	37	4
16	Port Klang - transload		1 day	0	-	4
17	Port Klang-Lad Krabang	Rail	2.5 days	1,323	380	3
	Lao transit documents		2 to 3 days		12.5	2
	Rail transfer charges				12	3
23	Lad Krabang ICD charges**		1 day		14.5	4
	Lad Krabang-Nongkhai	Road	1 day	595	1,500	3
25	Nongkhai-Thanaleng	Bridge	0.5 hour	4	8	4
	Transit Customs charge				39	2***
	Thanaleng Customs post		3 to 5 days			2.5****
	Thanaleng-Vientiane	Road	1 hour	13	47	3
	Other Handling charges****				300	3
	TOTAL		**28/30**	**13,638**	**2,900**	**3.13**

* Assuming no delays

** For a breakdown of cost at Laem Chabang port and Lad Krabang ICD please refer to Table 8.5

*** Personal connection and financial incentives can increase confidence index

**** Include profit and Thanaleng customs post charges

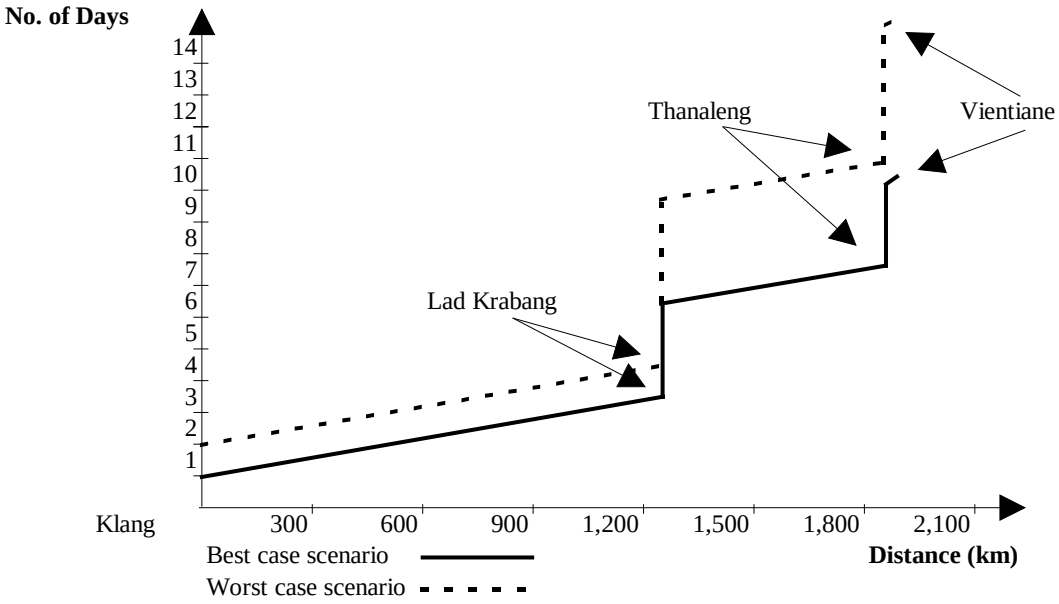
Source: Compiled from industry sources

Route No. 10 (see routeing map in Appendix D10) via Port Klang in Malaysia is the fastest route that is available to Lao importers with a total transit time of 28 to 30 days for the goods to arrive in Vientiane. This route has also the shortest distance at 13,638 km with rail transport taking up to 10% of the total distance. This is due to the fact that the Strait of Malacca has been bypassed by using a land bridge from Port Klang to Lad Krabang ICD. There is no need to tranship in Singapore to a feeder vessel. The confidence index is also consistent with the routes via Thailand at 3.13. The rail confidence index is also higher than for the Laem Chabang-Lad Krabang route at 3. This relatively high confidence in international rail transport (compared to local rail transport in Thailand) is partly due to the fact the Port Klang-Bangkok-Lad Krabang route is operated by private operators.

One of the main advantages of using this route is the incentive offered by Port Klang for transit cargo. Transit cargo can remain free of charge 28 days in Port Klang and the port charges are less than at Singapore at USD 37. Another incentive is the transit time for rail transport of 2.5 days, which is also a lot faster than the usual 7 to 8 days from Port Klang to Lad Krabang by sea. While the goods are on the train, the Lao importer or his agent can apply for Lao transit documents in Bangkok at the Lao embassy and if there are no delays the goods can then move within 2 to 3 days to Lao PDR after arrival at Lad Krabang.

Figure 8.28 describes the possible variations in transit time from Port Klang to Vientiane via Lad Krabang. In the best-case scenario, the goods can arrive at Thanaleng within 7 days of arrival in Port Klang. This means that the journey from Marseilles to Thanaleng would have taken only 25 days. In the worst-case scenario, it can take up to more than 2 weeks for the goods to be delivered to the importer's warehouse. The rail transit time stands for 9% of the total transit time while road only represents 3.5%. Sea transport has the highest ratio with 53%. Other types of related activities take up to 34.5% with transit and import procedures representing at least 18% of the total transit time.

Figure 8.28 Variation in transit time from Port Klang to Vientiane



Source: The Author

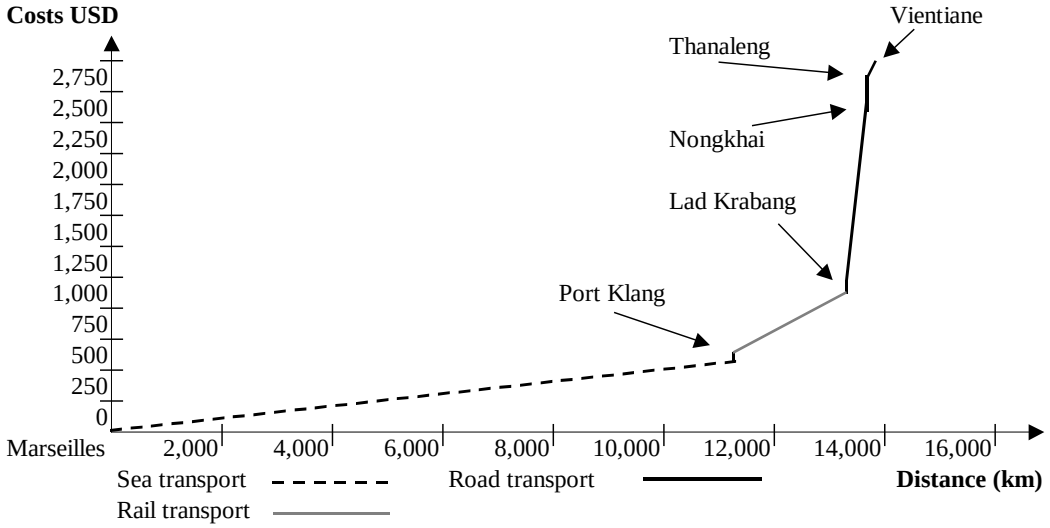
Route No. 10 via Port Klang is slightly cheaper than routes using Bangkok port or Laem Chabang port in Thailand at USD 2,900 per TEU. Lao importers and logistics/transport service providers have shown a great interest in this particular route. The cost of this route is competitive, the confidence index is reasonable and more importantly its the transit time is the fastest available for imports from Europe. This interest is consistent with the findings related to international freight transport practices in Lao PDR where transit time is ranked as the most important factor in attitudes towards the selection of transport mode[15].

Figure 8.29 and Figure 8.30 represents the total cost for the transport of wine from Marseilles via Port Klang to Vientiane and the inland leg from Port Klang to Vientiane respectively. As expected, the transport mode with the highest steepness ratio is road transport, followed by rail transport, and sea transport. Rail transport takes up to 13% and sea transport comprises 19% of the total transport cost. Road transport has the highest share with 52%. Other related costs are quite considerable with a ratio of 16% of the total transport cost. The delivered price up to Vientiane will be USD 41,900 per TEU or USD 3.03 per bottle. The transport cost from

[15] As demonstrated in Chapter 6

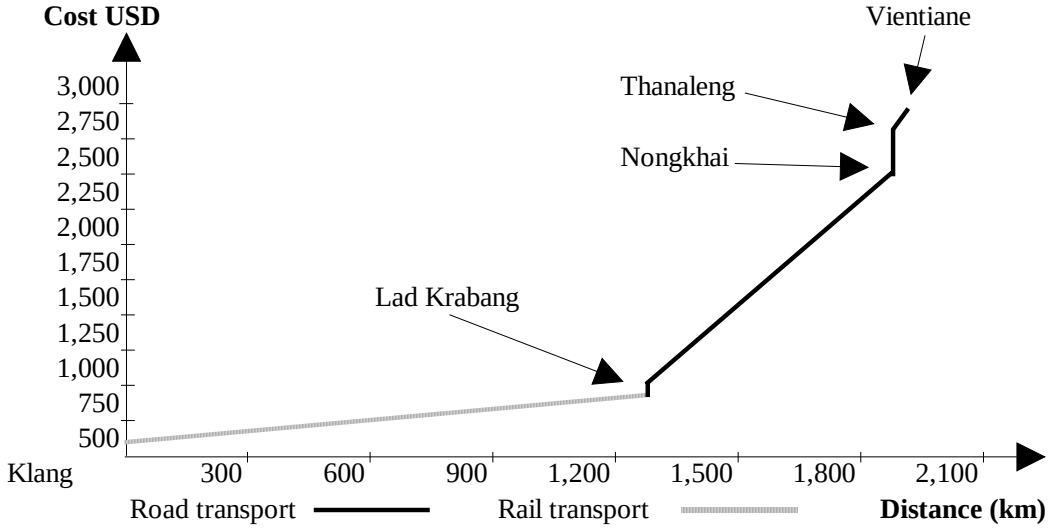
Marseilles via Port Klang to Vientiane will correspond to 6.9% of the total cost of goods upon arrival in Vientiane.

Figure 8.29: Marseilles-Port Klang-Lad Krabang-Vientiane



Source: The Author

Figure 8.30: Port Klang-Lad Krabang-Vientiane



Source: The Author

8.3.12: Wine import routeing summary

Of all the alternative journeys between Marseilles and Vientiane, the option via Port Klang achieves the most competitive transit time with a reasonable confidence index while the alternative via Danang achieves the most competitive transport cost (see Table 8.17) but strangely enough, the preferred import route for wine from Marseilles is via Bangkok. This is probably due to the central role held by the Lao embassy in Bangkok in delivering transit documents.

If the goods transit through Vietnam, the Vietnamese Ministry of Trade will have to issue the transit documents upon request by the Lao Ministry of Commerce while when the goods transits through Thailand, transit documents and certificates of final destination issued by the Lao embassy in Bangkok are sufficient to secure the release of Lao transit goods from Thai Customs to continue their journey into Lao PDR. Route No. 10 via Port Klang is still unknown to the majority of Lao importers and logistics/transport service providers but can become an important import route in the near future with its competitive pricing (compared to other routes only transiting through Thailand) and transit time.

Table 8.17: Total transport costs, transit time and confidence index

Route	Total Transport Cost (USD)	Total Transit Time (days)	Confidence index
6 Via Danang (Vietnam)	2,797	32/34	2.75
7 Via Bangkok (Thailand)	2,927.3	31/33	3.13
8 Via Laem Chabang (Thailand)	2,906.5	31/33	3.19
9 Via Lad Krabang (Thailand)	2,956	33/35	3.15
10 Via Port Klang (Malaysia)	2,900	28/30	3.13

Source: The Author

At the present moment, Laotian importers of European goods are not fully aware of the multimodal alternatives that are offered to them via Thailand and Malaysia. This ought be due to the fact that most of these importers prefer to buy their product CIF Thanaleng, CIF Bangkok or CIF Laem Chabang thus not controlling the transport chain until the goods have been discharged at the port of arrival. If Laotian importers

want to benefit from the various route options that are offered to them, then they will have to negotiate their international trade under trade terms that gives them control of the transport chain. These INCOTERMS, such as FOB or FCA Marseilles, will assist in the control of the transport chain, as Laotian importers will be able to organise and nominate the main carriers and choose the most suitable route.

When comparing the costs involved in these routes, sea transport is as expected the cheapest per cost/km, rail is intermediate and road transport is the most expensive (see Table 8.18). It is also worth noting that the various other charges represent quite a significant proportion of the final 'delivered' price into Lao PDR. On certain route, such as via Bangkok, transit and other charges can represent up to 22% of the total transport cost.

Table 8.18: Cost of freight/km by modes of transport with confidence index

Route	Mode	Cost/km (USD)	Confidence index
6: Marseilles-Singapore	Sea (main)	0.05	4
Singapore-Danang	Sea (feeder)	0.21	3
Danang-Vientiane	Road	0.71	1
7: Marseilles-Singapore	Sea (main)	0.05	4
Singapore-Bangkok	Sea (feeder)	0.12	4
Bangkok-Vientiane	Road	2.30	3
8: Marseilles-Singapore	Sea (main)	0.0.5	4
Singapore-Laem Chabang	Sea (feeder)	0.12	4
Laem Chabang-Vientiane	Road	2.05	3
9: Marseilles-Singapore	Sea (main)	0.05	4
Singapore-Laem Chabang	Sea (feeder)	0.12	4
Laem Chabang-Lad Krabang	Rail	0.20	2
Lad Krabang-Vientiane	Road	2.45	3
10: Marseilles-Port Klang	Sea (main)	0.04	4
Port Klang-Lad Krabang	Rail	0.28	3
Lad Krabang-Vientiane	Road	2.45	3

Source: The Author

Table 8.19 illustrates the transport cost per bottle of wine according to the alternative import routeing. There is not much difference between the various routes in terms of

price. The transit time and confidence index will determine the route chosen within import and transit regulatory constraints.

Table 8.19: Cost of transport (per bottle) from Marseilles

Route	Average cost of wine per bottle	Cost of transport per bottle	Total cost (bottle & transport)
6 Via Danang	USD 2.82	USD 0.21	USD 3.03
7 Via Bangkok	USD 2.82	USD 0.22	USD 3.04
8 Via Laem Chabang	USD 2.82	USD 0.21	USD 3.03
9 Via Lad Krabang	USD 2.82	USD 0.22	USD 3.04
10 Via Port Klang	USD 2.82	USD 0.21	USD 3.03

Source: The Author

The findings in Part B are even more interesting than in Part A as no matter the import routeing alternative there is only a USD 0.01 difference in transport cost per wine bottle. The cost of transport for Route 6, Route 8 and Route 10 is at USD 0.21 per bottle but Route 10 is the only routeing alternative that uses rail transport. Route 7 and Route 9 share the same transport cost per wine bottle but Route 9 includes the intermodal transfer and rail costs between Laem Chabang and Lad Krabang ICD. The final decision regarding import routeing selection should be highly dependent on transit time and confidence index. Nonetheless, Bangkok Port is the dominant import port for Lao trade but this is not because of price, transit time or confidence index. The dominance of Bangkok Port is based on the location of transit-related regulatory agencies that may facilitate or impede the movement of wine from Bangkok Port to Vientiane (i.e. the Lao embassy, the Port Authority of Thailand and the location of the dedicated transit warehouse for Lao PDR under the Thai Customs Department).

PART C: EXPORT ROUTEING FROM VIENTIANE TO SINGAPORE

The scale of trade in the region requires that new developments in transport, particularly in the field of freight forwarding, multimodal transport and logistics management be adapted to suit South East Asia's particular needs. Trade activities contribute significantly to economic development and an efficiently managed transport system is a prerequisite for trade competitiveness (Karandawala, 1999). The freight forwarding industry can play a vital role in promoting international trade in the region. The services of a qualified and credible freight forwarder can effectively assist exporters and importers to reduce transport and documentation costs as well as inventory due to its ability to select and contract appropriate transport arrangements for each consignment and employ "just-in-time" logistics practices (Banomyong, 1999b).

Freight forwarders, when offering multimodal transport services, relieve importers and exporters from transport related problems as forwarders are able to identify the optimum route and combination of transport modes that would provide importers and exporters with value for money. As an example of the routeing choices that could be managed by forwarders in South East Asia, a non-exhaustive selection of routes and combination of transport modes available on the Vientiane-Singapore corridor are presented (see Table 8.20).

Table 8.20: Routeing alternatives for freight between Vientiane (Lao PDR) and Singapore

Route	**Origin:**	**Mode**	**Border**	**Mode**	**Transload**	**Mode**	**Destination:**
A	Vientiane	Road	Lao Bao-Houey Khaki	Road	Danang (Vietnam)	Sea	Singapore
B	Vientiane	Road	Thanaleng-Nongkhai	Road	Bangkok (Thailand)	Road	Singapore
C	Vientiane	Road	Thanaleng-Nongkhai	Rail	Lad Krabang (Thailand)	Rail	Singapore
D	Vientiane	Road	Thanaleng-Nongkhai	Road	Laem Chabang (Thailand)	Sea	Singapore

Source: Compiled from industry sources

8.3.13 Route A: "Road-Sea" via Danang (Vietnam)

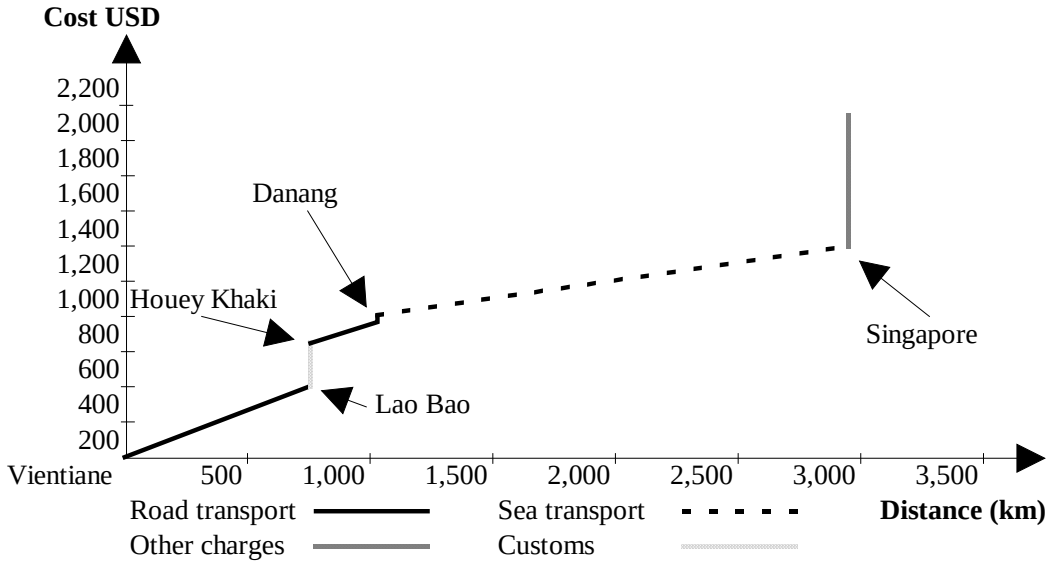
Table 8.21: Vientiane-Danang-Singapore

Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Danang	Road	3 days	1,060	750	1
	LaoBao-Houei Kaki Customs		2 hours	0	220	1***
4	Danang Charges			0	20	3
	THC			0	1	2
5	Danang waiting time		1 day	0	-	3
	Danang-Singapore	Sea	4 days	1,910	400	3
9	Singapore Charges			0	59	4
	Other Handling Charges**			0	700	2
	TOTAL		**9/10 days**	**2,970**	**2,150**	**2.37**

*Assuming no delays
** Include profit
***This confidence rating can be improved with the payment of a higher customs charge or other types of financial incentive.
Source: Compiled from industry sources

Route A, via Vietnam has been, traditionally, the only sea access for Lao PDR (see routeing map in Appendix E1). The confidence index for this route is very low at 2.37. Many of the respondents felt that there were too many factors that could not be controlled. Transport is not considered to be a big problem even when road transport takes up to 34% of the total transport cost while sea transport is only at 18%. It is the other charges not directly related to transport, which are very hard to quantify precisely. Depending on the officials involved in the transit process the other charges may increase or decrease. This is one of the reasons why other handling charges are very high for transit via Vietnam at USD 700. It is assumed that Customs charges are distributed evenly among Lao and Vietnamese customs officials. Figure 8.31 represents the cost build-up along route A.

Figure 8.31: Vientiane-Lao Bao-Houey Khaki-Danang-Singapore



Source: The Author

The steepness of the road transport curve is greater than for sea transport. This route has many weaknesses, especially with charges not directly related to transport, which is at 46.5% with customs charges comprising up to 22% of the inland transport cost. The transit time for Route A is around 9 days, almost equally separated between the inland and the sea-leg. The transit time given is under the assumption that there are no administrative delays while the goods are in transit.

8.3.14 Route B: "All road" via Bangkok (Thailand)

Table 8.22: Vientiane-Bangkok-Singapore (All road)

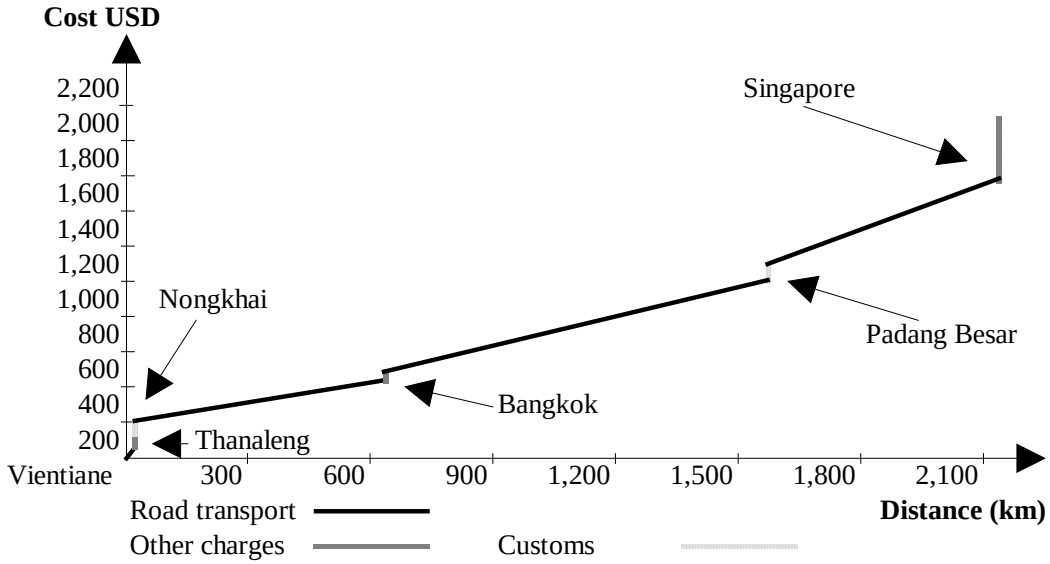
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-Nongkhai	Bridge	0.5 hour	4	8	4
	Nongkhai-Bangkok	Road	1 day	633	315	3
	Document Charge			0	50	3
	Customs*** Lao side Thai side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
4	Bangkok-Padang Besar	Road	2 days	973	658	2
	Thai Customs fees			0	26	2***
5	Padang Besar-Singapore	Road	1 days	567	552	3
	Malaysian Customs fees			0	80	3
	Singapore Charges**			0	59	4
	Other Handling Charges**			0	300	3
	TOTAL		**4/5 days**	**2,190**	**2,139**	**2.76**

* Assuming no delays
** Include profit
*** Personal connections and financial incentives can help increase Customs' confidence index
Source: Compiled from industry sources

This "all-road" option (see routeing map in Appendix E2) is in theory possible but it has never been used in practice even though the transit time is, theoretically, very competitive compared to route A. It is possible for the cargo to move on the same truck for the whole journey. The only constraint is that that truck must belong to the Express Transit Organisation (ETO), which is the Thai state-own trucking company. It is the only company that has all the transit rights from Vientiane to Singapore via Malaysia. If a different trucking company is involved, the goods will have to be transloaded in Nongkhai, Bangkok, and Padang Besar at an average cost of USD 12

per transload. This cost is included in the other handling charges of USD 300. Figure 8.32 illustrates freight movement on the Vientiane-Bangkok-Singapore route.

Figure 8.32: Vientiane-Bangkok-Singapore



Source: The Author

The confidence index for route B is higher than for route A at 2.76. The confidence index for road transport is not too bad at 2.75 but the many border crossings seem to be one of the main weak points of the route. It is noteworthy that Malaysian customs are given a 'fairly confident' rating compared to the 'not very confident rating' assigned to Thai and Lao customs. Customs fees take up to 7% of the total transport costs while document charges are at around 2.5%. Other handling charges make up to 17% of the total transport cost as far as Singapore. Road transport represents up to 73.5% of the total transport cost. Road transport cost is at USD 0.71/km per TEU from Vientiane to Singapore. A closer analysis of each segment will reveal that road transport cost break down as follows:

- Vientiane-Thanaleng leg is at USD 3.6/km per TEU;
- Thanaleng-Nongkhai leg is at USD 2/km per TEU;
- Nongkhai-Bangkok leg is at USD 0.49/km per TEU;
- Bangkok-Padang Besar leg is at USD 0.67/km per TEU;
- Padang Besar-Singapore leg is at USD 0.97/km per TEU.

8.3.15 Route C: "Road-Sea" via Bangkok (Thailand)

Table 8.23: Vientiane-Bangkok-Singapore (Road-Sea)

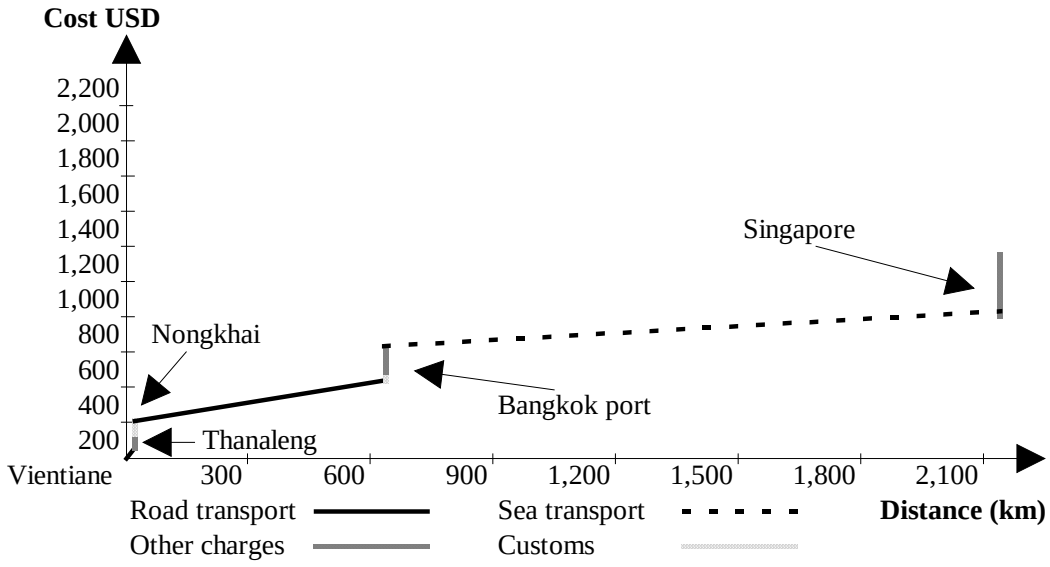
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-Nongkhai	Bridge	0.5 hour	4	8	4
	Nongkhai-Bangkok	Road	1 day	633	315	3
	Document Charge			0	50	3
	Customs*** Lao side Thai side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
2	Bangkok Port: 1.Container stevedorage 2. Container wharfage 3. Lift on/off charges 4. THC		1 day	0	 21 22 17 68	 3 3 3 3
	B/L charge			0	13	3
	Tea money**** Customs Port			0	 6.7 14.1	 1 1
3	Feeder Connection		1 day	0	-	
	Bangkok-Singapore		4 days	1,540	230	4
	Singapore Charges**			0	59	4
	Other Handling Charges**			0	300	3
	TOTAL		**6/7 days**	**2,190**	**1,214.8**	**2.76**

* Assuming no delays
** Include profit
*** Personal connections and financial incentives can help increase Customs' confidence index
**** This is the minimum amount required for normal services
Source: Compiled from industry sources

Route C is currently the favoured and the most commonly selected route on the Vientiane-Singapore corridor (see routeing map in Appendix E3). It is the cheapest route with a competitive transit time. The confidence index is still better than for Route A and equivalent to the all road option of route B. Road transport represents 30% of the total transport cost while sea transport takes 19%. Customs charges are at 3%, tea money is at 2% and document charges are at 6% of the total cost between Vientiane and Singapore. Other handling charges are representative of 40% of the whole transport cost.

Route C via Bangkok port can become even more competitive if other charges are reduced (i.e. THC, documents, tea-money, etc.). Figure 8.33 graphically illustrates how these other charges increase the total transport cost. The highest cost increase occurs during the intermodal transfer at Bangkok port followed by the border crossing between Thanaleng and Nongkhai. Traffic is not diverted from the border crossing between Thanaleng and Nongkhai, as it is the main entry and exit point into Lao PDR in terms of volume and value.

Figure 8.33: Vientiane-Bangkok port-Singapore



Source: The Author

The deep-sea port of Laem Chabang is another viable alternative though slightly more expensive by USD 26.2. Nonetheless, the confidence index via Laem Chabang is rated at 3.06, which is the highest of all the routes. It is then a question for the freight forwarder to select for his client the best possible option. For Lao traders, transit time, reliability and costs are considered the three most important factors in their selection of modal choices. The combination of road and sea transport via Thailand to Singapore seems to fulfil Lao traders' criteria of reasonable transit time, higher reliability and competitive cost.

The transit time is slower than the all-road solution by one to two days, which can be acceptable depending on the nature of the product transported. Overall reliability is not worse than the all road option but the Bangkok (or Laem Chabang) to Singapore segment has a confidence index of 4. This is a very important factor for the selection of the road-sea modal combination via Thailand as the sea-leg represents 70% of the total distance. Transport cost is also the lowest of all the routes at USD 1,214.8/TEU compared to USD 2,139/TEU for the all road option.

8.3.16 Route D: "Road-Rail-Road" via Lad Krabang (Thailand)

Table 8.24: Vientiane-Lad Krabang-Singapore

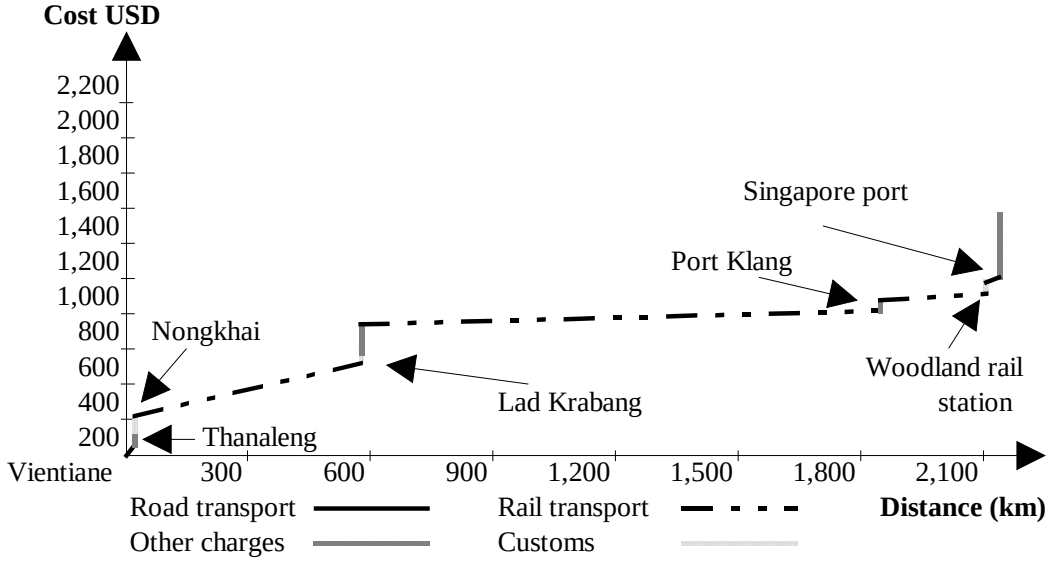
Day	Leg	Mode	Transit time*	Distance (km)	Cost (USD)	Confidence index
1	Vientiane-Thanaleng	Road	1 hour	13	47	3
	Thanaleng-Nongkhai	Bridge	0.5 hour	4	8	4
	Nongkhai-Lad Krabang	Rail	30 hours	595	350	2
	Document Charge			0	50	3
	Customs: Lao Side Thai Side			0	 13 26	 2 2
	Transit Entry Document			0	5	2
	Rail Transfer charge			0	12	3
2	Lad Krabang ICD: 1.Handling Charge 2.Gate Charge 3. THC		1 day	0	 13 1.5 68	 3 3 3
	Malaysian Customs fees			0	80	3
	Lad Krabang-Woodland (Singapore)	Rail	4.5 day	1,573	450	3
	Rail Transfer charge			0	12	3
	Woodland-Singapore port		0.5 day	5	55	3
	Singapore charges			0	59	4
	Other Charges**			0	300	3
	TOTAL		**7/8 days**	**2,190**	**1,549.5**	**2.82**

* Assuming no delays
**Include profit
Source: Compiled from industry sources

There is a possibility of using rail transport for the Vientiane-Singapore corridor but in practice rail is never used (see routeing map Appendix E4). The main reason is because there is no regular schedule from Nongkhai to Lad Krabang ICD. The price for rail transport between Nongkhai and Lad Krabang ICD is quite competitive at USD 350/TEU but the confidence index is lower at only 2. The transit time of 30 hours is slightly longer than for road transport. The State Railway of Thailand (SRT) used to offer a regular schedule service but due to the low volumes of goods coming in and out of Lao PDR, the SRT decided to offer the rail service on a chartering basis and only for block trains.

The rail transport via Malaysia is somewhat less problematic with daily departures but most of the trains terminate at Port Klang. Transloading will occur before the goods can be directed towards Woodland rail station in Singapore. Road transport usage for this route is between Vientiane and Nongkhai, and between Woodland rail station and Singapore port. Compared to the distance road transport is the most expensive mode of transport with USD 55/TEU for both segments. Figure 8.34 explains the cost structure of the road-rail combination between Vientiane and Singapore.

Figure 8.34: Vientiane-Lad Krabang ICD-Singapore



Source: The Author

Road transport costs only take up 7% while rail transport, as the main mode of transport, represents 52% of the total transport costs. The distance covered by rail transport on this route is 98% of the whole journey. The confidence index is better than the all-road option or the road-sea combination via Bangkok port at 2.82. This is quite good for a route that only exists in theory. The transit time is marginally longer than for the road-sea combination but could be improved if a direct service is introduced from Lad Krabang to Singapore. Due to the low volumes of goods involved in the Lao trade, a direct service between Nongkhai and Singapore does not seem to be feasible at the present moment.

The air transport option was not introduced in this selection of combination of modal choices, between Vientiane and Singapore, as they are seen more as "emergency networks" (Banomyong *et al*., 1999). However, the role of air transport must never be discounted especially when high value or perishable goods are involved.

The regional freight forwarder seems to be the only entity capable of collecting the amount of data needed for route and mode selection. This is done through the forwarder's network of agencies in South East Asia. This network will provide the forwarder with information related to transport infrastructure, rules and regulations, transit procedures, available logistics services and costs involved in the management of regional multimodal transport corridors within global supply chains. It is practically impossible for a shipper or a consignee to have all the data related to alternative routeing and modal combinations for decision-making purposes.

8.3.17 Summary of export routeing from Vientiane to Singapore

Freight forwarders, when offering multimodal transport services, need to be able to offer not only door-to-door transport but also to take complete control of the supply chain (if possible). The Vientiane-Singapore corridor has been taken as an illustrative case study of a range of transport and logistics issues that need to be addressed by freight forwarders operating in South East Asia. This Vientiane to Singapore corridor offers a selection of alternatives relating to modal choice and combination of modes

of transport. The all-road option gives the fastest transit time, the road-sea combination via Bangkok port offers the cheapest transport cost and the road-rail solution has the highest confidence index (see Table 8.25). Currently, almost all of the goods carried from Vientiane to Singapore are done with a road-sea combination through Bangkok port. Singapore, in itself, is not the main destination for Lao cargo but it is a very important transhipment point for main-line mother-vessel connections to the rest of the world.

Table 8.25: Cost of freight, transit time and confidence index

Route: Vientiane-Singapore	**Total Transport Cost (USD)**	**Total Transit Time**	**Confidence index**
A: via Danang (road-sea)	2,150/TEU	9/10 days	2.37
B: via Bangkok (all-road)	2,139/TEU	4/5 days	2.76
C: via Bangkok (road-sea)	1,214.8/TEU	6/7 days	2.76
D: via Lad Krabang (road-rail-road)	1,549.5/TEU	7/8 days	2.82

Source: The Author

The combination of total transport cost, total transit time and confidence index factors does explain to a certain extent why the road-sea combination via Bangkok port is the most favoured routeing. Nonetheless, the road-rail-road option via Lad Krabang to Singapore needs to be further explored because of its higher confidence index. If the volume of cargo increases in the near future, it might be possible that the freight rates will become more competitive.

8.4 CONCLUSIONS

The recognition of transport logistics, and in particular multimodal transport, as a vital element in export and import has changed the way business is done forever. Multimodal transport has arisen as a result of customers' demand for more efficient, rapid, and reliable deliveries (Andersson & Hasson, 1998). Multimodal transport enables economies of scale within a transportation system where modes are used in the most productive manner. Transit time and cost take a fundamental importance on the globalisation of trade and consequently transportation.

Exporters, importers and logistics service providers must re-evaluate their strategies for freight transportation, as all modes and all possible transfers between modes must be considered. With the development of new nodal and multimodal infrastructure in the region, Lao PDR has achieved a growing accessibility to the international market. Table 8.26 summarises the percentage of each transport mode and nodal link in the total transport costs for Lao export to and import from Europe.

Table 8.26: Percentage summary of total transport costs

Route	Road	Rail	Sea (Main)	Sea (Feeder)	Other*	Total
1	22%	-	37%	12%	29%	100%
2	15%	-	51%	9%	25%	100%
3	16%	-	51%	9%	24%	100%
4	14%	1%	50%	9%	26%	100%
5	***14%***	***15%***	***48%***	**-**	***23%***	***100%***
6	28%	-	21%	14%	37%	100%
7	52%	-	20%	6%	22%	100%
8	53%	-	20%	6%	21%	100%
9	52%	1%	20%	6%	21%	100%
10	***53%***	***13%***	***19%***	**-**	***15%***	***100%***

* Include Customs and other usual financial incentives

Source: The Author

For Lao garment exporters, on average, the total transport cost to Rotterdam is shared by road transport (16.2%), rail transport (3.2%), Main sea transport (47.4%), Feeder (7.8%) and other charges (25.4%). The main sea leg has the highest share of the total transport cost. Route No. 5 via Port Klang, as the most competitive route, has also the lowest ratio of other charges at 23%.

Lao wine importers are faced with a higher average for road transport cost (47.6%) but with a lower sea transport cost (main) at 20%. Route No. 10 via port Klang, which is the most competitive in terms of transit time, has the lowest ratio of other charges for import at 15% while Route No. 6 via Danang, which is the most competitive in terms of pricing, has a ratio of other charges at 37%. Route No. 6 can become more competitive if that other charges' ratio is reduced. The confidence indices introduced in this chapter do not have a strong impact on actual routeing selection. Bangkok Port, with a confidence index of 2.89 for export and 3.13 for import, is still the preferred transit port for Lao cargo destined to or imported from Europe even though routeing via Laem Chabang, Lad Krabang and Port Klang received a higher confidence rating (except for import via Port Klang which received the same confidence rating as via Bangkok Port).

The efficient management of these multimodal transport corridors is of utmost importance to Lao exporters and importers. Multimodal transport operators and logistics service providers seem to be the best equipped to select the most competitive and reliable route. The example of multimodal transport corridors within South East Asia has shown that only regional freight forwarders can gather the amount of data needed for the selection of the most appropriate corridor. The most commonly used corridor is the road-sea option via Bangkok Port, which is the cheapest in term of cost, the all-road option has the fastest transit time and the road-rail-road option has the highest confidence index. The road-sea option via Bangkok Port is still the preferred option not only because of the lowest freight rates but also due to reasonable transit time and confidence index.