

Private Sector Views on Road Transport along the North South Economic Corridor

Greater Mekong Subregion Freight Transport Association (GMS FRETA)

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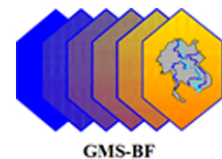


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Abbreviations

3-PL	Third Party Logistics
ADB	Asian Development Bank
AEC	ASEAN Economic Community
ASEAN	Association of South East Asian Nations
CIF	Cost, Insurance, Freight (Terms of Sale)
DWT	Dead Weight Tonnage
ECF-4	Fourth Economic Corridors Forum
FRETA	Freight and Transport Association
ft	foot (e.g. 20 foot container)
GMS	Greater Mekong Subregion
GMS-BF	Greater Mekong Subregion Business Forum
GP	General Purpose (container)
min.	Minutes
NSEC	North South Economic Corridor
PRC	People's Republic of China
PRD	Pearl River Delta
RF	Reefer (container)
SEZ	Special Economic Zone

Introduction and Background

The North South Economic Corridor (NSEC) has been developed by the Asian Development Bank (ADB) under the Greater Mekong Subregion (GMS) program since 1998. At the 8th GMS Ministerial Meeting in Manila in October 1998 the development of the NSEC was one of three priority projects under the economic corridor approach.

The NSEC covers the route between Bangkok in the center of Thailand up to Chiang Rai in Northern Thailand. The corridor splits two times between Bangkok and Kunming. The first divergence is in Nakhon Sawan, where one road connects directly with Chiang Rai, while the other road connects through Tak and Chiang Mai to Chiang Rai. The second splitting occurs in Chiang Rai, where one part traverses Lao PDR (R3A) and the other part passes through Myanmar (R3B). Both routes merge again in Xiaomenyang near Jinghong and connect via Yuxi and Pu'er with Kunming, all in Yunnan province of the People's Republic of China (PRC) (see Figure 1).

Improvements in the transport infrastructure over the past ten years have led to a significant increase in trade and traffic. For instance, whilst in 2005 a total of 3,750 trucks passed the border point of Chiang Khong, in 2011 this number increased to 30,954 and a further increase of 7,000 vehicles is projected for 2012.

Despite the large growth of trade in the past years, there is still a large trade potential for the NSEC as much trade between Thailand, Lao PDR and Yunnan province is not transported via the NSEC. To unlock this latent trade, the private sector must be enabled to participate in regional and global supply/value chains or integrated into production networks. The corridor must be upgraded to meet the standards and logistics needs of those supply chains and production networks in order to fully utilize its potential.

The goal of this research paper is to provide policy makers with private sector views on road transport along the NSEC as an input to the Fourth Economic Corridors Forum (ECF-4) in June 2012. This includes challenges for the private sector in conducting business and trade but also positive attributes.

Besides desk research, a total of 44 interviews with the private sector have been conducted in order to evaluate the performance of the corridor, its service providers, and infrastructure. This research paper marries the results from the interviews, the observations of the field trip, and the desk research in order to provide an objective input for governments, the private sector, and development partners.

During the study period, seven priority areas, where improvements are needed, became apparent:

- (i) NSEC Performance: Perception vs. Reality
- (ii) Road Safety along the NSEC
- (iii) NSEC Road Infrastructure
- (iv) NSEC Border Infrastructure and Transshipment
- (v) Exchange of Traffic Rights between Thailand, Lao PDR, and the People's Republic of China
- (vi) Border Crossing and Ferry Service
- (vii) Future Competitiveness

Addressing those challenges will further enhance the corridor performance necessary for deeper supply and value chain integration. To succeed, the full commitment of both the private and public sector is

paramount. This document aims to provide a private-sector view on potential opportunities for both to engage in the corridor development and identify priority activities.

Figure 1: Map of the Greater Mekong Subregion North South Economic Corridor



Source: ADB

Trade and Transport along the NSEC

The logistics industry permanently struggles to balance time, cost, and reliability. Road transport offers many advantages over other modes of transport (water, air) such as door-to-door service, fast delivery times and high flexibility. These advantages, however, can only come into effect if transport is smooth, price efficient, and without many delays.

There are few alternatives to the NSEC for trade between Bangkok and major economic centers in the PRC such as air transport and ocean/rail/road transport. While air transport is used to transport vegetables and other perishables from Yunnan province of PRC for the local market in Bangkok, it remains small in volume. Multimodal transport combining ocean freight and road/rail is presently used for high value cargo such as computer, electronic and car parts.

For intra-corridor trade, road transport is the dominant mode as the Mekong River can only be used on certain sections and/or during wet season. Combining the two modes of transport will significantly extend the lead time from around 3-5 days (Bangkok to Kunming) to 10-14 days. River transport becomes viable for non-perishable, low-value cargo as the transport price is much lower, not least for the large volumes a ship can take.

Trade and traffic volume has risen significantly along the corridor with recent improvements in the road infrastructure. For instance, truck traffic increased by around 7 times since 2005 from 3,750 trucks to 30,954 in 2011. The latest numbers for 2012 show a further increase in traffic by around 50% compared to the same reporting period a year earlier (October to April).¹

The main goods traded along the NSEC are petroleum products and agricultural products. The products traded along the NSEC constitute only around 30% of all trade between Thailand and Yunnan province. This means that there is a trade potential twice the size of current trade.

The above underlying considerations were taken into account for the recommendations below to improve the corridor and its performance in terms of time, cost, and reliability. The supply chains of some products have special logistics requirements (e.g. cold chain for agricultural products) which are integrated into this report where possible. Additionally, the corridor improvements

¹ Chiang Khong Customs House Data. It combines both incoming and outgoing traffic.

Definitions

There are numerous terms in the field of transport and logistics that are used interchangeably and lead to confusion even among experts, e.g. transloading, lift-off/lift-on, transshipment, container swap and exchange of trailers. These are defined for this paper as follows:

Transloading refers to the physical movement of cargo from one unit to another (e.g. from one container into another container). Transloading is often done with manual laborers, but also forklifts or other equipment could be used.

Lift-off/lift-on refers to the switch of transport units (e.g. containers) from one trailer to another trailer. This is usually done with a crane where the whole container (rather than its cargo) is moved to another transport unit (e.g. trailer, ship, rail wagon, etc.).

Exchange of trailer refers to a change of the motor tractor of a truck. In this case, the cargo remains untouched on the trailer and only the front part of the truck changes.

Transshipment refers to the whole process of changing the vehicle/container/cargo regardless of the method (transloading, lift-on/lift-off, exchange of trailer) and is therefore a more generic term.

Container swap refers to an agreement between two truckers to accept, handle, and return containers belonging to the other, including the size of the container used, responsibility for damage, etc.

should also be seen in light of unlocking the potential trade that is presently not traded along the corridor.

NSEC Performance: Perception vs. Reality

Issues and Concerns

Under consideration of the present cargo volume, transport operations along the NSEC are smooth and relatively time-efficient.

The main concern regarding the NSEC performance is:

Inaccurate knowledge about the NSEC performance² among irregular users of the corridor

Interviews with various private sector representatives demonstrated a lack of knowledge about the present corridor infrastructure among irregular NSEC users. Key people responsible for organizing supply chains rely on outdated information on corridor infrastructure and are not aware of recent infrastructure improvements. Consequently, they use other established trade routes that provide a reliable, time, and/or cost-efficient transport service. Much potential trade such as computer parts or car parts is therefore transported on alternative routes. For example, among the top seven products exported from Thailand to Yunnan province of the PRC (>90% of all exports), around 68% are not transported along the NSEC, because these products demand guaranteed reliability and cargo safety with very little to no tolerance for errors. Such products are usually containerized, need to be handled with utmost care and may not be transloaded, and are therefore shipped by sea.

However, it is already possible to transport the cargo along the NSEC without opening the container. The cargo would only need to be transshipped at both at the Thai/Lao and Lao/Chinese borders. It is believed that the NSEC fails to attract such business today mainly because many operators are not aware of this transport option. Nevertheless, other reasons could be the requirement for transshipping the goods twice (risk of damage) or the perceived greater risk of container loss with the current ferry operations (both addressed later in this paper).

Private sector suggestions for the public sector

- (a) Provide accurate and timely information about the corridor performance, corridor improvements, and on ongoing and completed upgrades of the NSEC infrastructure. Regular updates could be provided through the various transport associations, websites, newspapers, at conferences and meetings between government and private sector, and in advertisements.

Road Safety along the NSEC

Issues and Concerns

Main concerns regarding road safety along the corridor are:

- (i) No brake-paths for trucks in mountainous areas
- (ii) Weight limit of the bridges is insufficient for current traffic
- (iii) Numerous pedestrians

² In terms of time, cost, and reliability

(i) The NSEC traverses through mountainous areas. While the PRC built first-class bridges and tunnels along the highways, in northern Thailand and Lao PDR the corridor has steep slopes and many curves. This forces heavy-weight truck traffic to brake hard and, over long distances, this creates a risk of brake failure with no emergency-brake paths along the corridor in these areas.

(ii) Some of the bridges along the corridor in Lao PDR are designed for traffic with a maximum weight of 20-30 tons. Presently, many trucks on this corridor weigh up to 49.5 tons. The bridges are exposed to the full weight of the truck only a few seconds at a time since they are short in length, still this remains a safety concern.

(iii) The NSEC leads through various villages and smaller towns and there are many pedestrians, among them many children, walking and playing along the road. In the evenings farmers and workers walk home after work, carrying their harvest and tools. The geography of the area with many mountains limits options such as building by-passes or finding alternative road paths. Road safety is important, but equally this is a vital source for the livelihood and mobility of villagers and farmers.

Private sector suggestions for the *public sector*

- (a) Construct emergency brake-paths for heavy truck traffic in mountainous areas.
- (b) Upgrade bridges to handle traffic grossing 50 tons (or more).
- (c) Build speed bumps before traffic enters villages and smaller towns to reduce the overall speed of traffic.
- (d) Install sidewalks (in villages and smaller towns) and entry barriers for pedestrians, flyovers, small bridges etc. where necessary/particularly dangerous areas.

NSEC Road Infrastructure

Issues and Concerns

Generally, the road conditions of the NSEC vary between good and very good (April 2012). In Thailand and the PRC the road has four lanes throughout (two in each direction) including appropriate road signs, road marking, and sometimes even hard shoulders. Road signs in the PRC are in multiple languages (Chinese, English, Thai). In Lao PDR, the Thai-built section of the corridor did suffer from poor quality with many potholes and roadside collapses only two years after completion. However, this has been fixed and presently the existing road (two lanes) is generally in good condition also in Lao PDR.

Main concerns regarding the NSEC road infrastructure are:

- (i) Completion of the Friendship Bridge between Thailand and Lao PDR is delayed
- (ii) Weight limit along the corridor is standardized but is significantly lower on Lao national roads

(i) There is a widespread perception that the bridge will be delayed by more than its current projection of six months. The urgent completion of the Fourth Friendship Bridge between Thailand and Lao PDR including the new border crossing facilities is critical for expedient transport operations as it is expected to further fuel trade along the NSEC in the future. A site visit in May 2012 confirmed that the construction progress is now on target.

(ii) The weight limit regulation for trucks is standardized along the NSEC at 49.5 tons but is lower on Lao national roads. This is important because not all incoming road traffic from Boten border is destined to Thailand but a significant share travels via National Road No. 13 to Vientiane and other important cities in Northern Lao PDR. Even though trucks comply with the weight limit along the NSEC, they may be overweight for the Lao road infrastructure, if headed to other destinations.

Private sector suggestions for the *public sector*

- (a) Urgently complete the friendship bridge between Thailand and Lao PDR.
- (b) Upgrade the weight limit of important national roads in Lao PDR connecting to the corridor (long-run).

NSEC Border Infrastructure and Transshipment

Issues and Concerns

Thai trucks are presently not permitted to enter the PRC and vice versa, while Lao trucks can enter both Thailand (within Chiang Kong municipality) and the PRC (up to Jinghong).

Main concerns regarding the border infrastructure and transshipment are:

- (i) Transshipment breaks the cool-chain for fresh and frozen products
- (ii) Lift-off/lift-on (LoLo) operations are expensive due to market concentration
- (iii) Long waiting times to mobilize trucks in Mohan

(i) 95% of respondents indicated that reliability of their transport service is extremely important for their business operations. But the manual transloading of cargo at the transshipment facilities at the borders breaks the cool chain for approximately 3-4 hours (from opening the container until sealing the new one). The transloading is completed by laborers as there are no forklifts or other equipment available. Breaking the cool chain by exposing the cargo to outside air temperature, even for a few hours, can be harmful, especially for frozen products and fresh agricultural produce. In addition, manual transloading carries a risk of cargo damage.

(ii) In the border areas of the NSEC there are presently only two locations for LoLo-operations (Huayxay and Mohan). This market concentration allows extraction of monopolistic fees for LoLo-activities priced around USD 270 (THB 8000) for LoLo in Mohan. This is extremely expensive and requires intervention. Demand for it is low so far as many truckers/traders in Thailand and the PRC use non-ISO standard reefer containers which do not fit on the trailer of their respective trading partner. They gain a payload advantage within China. An advantage of increased LoLo-operations is lower risk of cargo damage. Introducing greater competition for LoLo-operations should reduce prices significantly (e.g. on other corridors LoLo-operation fees are USD 80). Currently, cargo from Thailand to China can use LoLo-operations to move a container Thailand to China door-to-door but this requires transshipping the container twice (in Huayxay and Mohan). In addition, the cargo needs to be carried on three different trucks, making the whole procedure very complicated. Cargo damage due to manual transshipment is minimal. One way to avoid transshipment is the exchange of trailers. Although happening in some occasions, it is not common practice. As a further option the cost for one LoLo-operation could be avoided if Thai trucks were to cross into PRC.

To date, exchange of containers between Thailand and the PRC is scarce. The different container sizes used in Thailand (standard sizes 20 ft and 40 ft) and the PRC (oversizes e.g. 45 ft) contribute to the need for transshipment as the containers do not fit on the trailers of the counterpart as well as the oversize containers carry more cargo than the standard size containers. Allegedly, there is a “trust” issue among container owners impeding exchange. The higher the value of the container (e.g. with a cooling unit), the more trust is required for exchange.

For petroleum products, transshipment³ is a non-issue because it is fast (1000 liter per minute) and does not require any special facilities. In practice transshipment of oil products is conducted in open spaces around 15 km from the Lao PDR/PRC border. Transshipment is used by drivers for their mandatory breaks. Furthermore, there is no backload and no potential for oil tankers to obtain a backload (tank cleaning is expensive and such a truck will not be allowed to carry any food liquids, the only potential liquid cargo southbound).

(iii) During peak traffic season there is a shortage of Chinese trucks in the Mohan area. Prior arrangement of transshipment (2-3 days) is therefore advisable to ensure an efficient transshipment process (schedule laborers, parking slot, necessary documentation, etc.) and reduce the waiting time to just a few hours. There is no problem provided there is sufficient time to plan for transport. However it can take a few days to mobilize Chinese trucks for an ad-hoc shipment despite the manual transshipment process is relatively fast (3-4 hours).

Private sector suggestions for the *private sector*

- (a) In the short-run, introduce more LoLo options for containers along the corridor. Expanding LoLo options will increase competition among private operators and reduce prices for this service (one operator already contemplates investing in a new gantry crane in Boten). However, the costs of cranes are high.
- (b) Launch container and trailer swap agreements. Container and trailer swap agreements regulate the type, size, and responsibility of containers used between traders and include a dispute settlement mechanism. There is reluctance in the GMS to introduce such agreements, but these kinds of agreements are in place in other regions worldwide with a strong track record⁴.

Private sector suggestions for *public-private partnerships*

- (c) Build a warehouse with cool chain capabilities including reefer slots. The cooling warehouse could help to transship frozen and fresh products to guarantee the cool chain (reliability) and minimize cargo damage. In addition, warehouses need to have reefer slots to provide energy for cooling containers

Advantages/Intentions of the Warehouse:

- a) Create new possibilities for trade by allowing perishable goods to be traded at the border;
- b) Allow goods to enter the supply chain at border areas;
- c) Offer an option to users of non-standard equipment to transship in secure conditions and keep the benefit of their larger vehicles; and
- d) Offer an option to truckers to hold their cargo waiting a matching truck without tying up their vehicle.

The warehouse does not intend to replace matching loads but just to offer greater options for traders and transporters.

³ Transshipment of petroleum products only required for trade between private entities, no transshipment required for trade between governments.

⁴ A prerequisite for container swap agreements are functioning LoLo-operations (cranes along the corridor).

outside the warehouse. Truckers could leave cargo at the transshipment facility eliminating their wait time for their counterpart to pick-up the cargo. Those warehouses could also be used for value-added activities such as packaging, labeling, etc. and play a critical part within value chains. Prerequisites for such investments are a stable investment environment including reliable land-tenure as well as a secure operating environment facilitating the market entry and administrative requirements (e.g. licenses, documents, procedures, etc.). To ensure seamless operations, warehouses could be operated under public-private partnership agreements where both parties contribute their respective strengths. For example, the private sector could ensure efficient and smooth day-to-day operations while the public sector ensures a stable investment and operating environment. However, liability issues for cargo damage during the stay in the warehouse need to be considered.⁵

Private sector suggestions for the *public sector*

- (d) In the short-run, the public sector could assist in the financing of the acquisition of new cranes for LoLo-operations, as mentioned in (a), to encourage greater competition and reduce entry barriers due to high crane costs. There are reports from transport operators that in some occasions they do trailer exchange. This is one way to avoid transshipment but to date not used widely along the corridor. In addition, allowing Thai trucks to enter the PRC (e.g. up to Jinghong or Kunming where more trucks are ad-hoc available) could further support the transport facilitation aspect of the Fourth Friendship bridge.
- (e) In the long-run, trucks should be able to move freely between all three countries.

Border Crossing and Ferry Service

Issues and Concerns

The border procedures were perceived by private sector participants as efficient. Interviews with customs brokers and transport operators showed that clearance times are fast (one day to cross both sides of a border) on both borders of the NSEC. With the roll-out of ASYCUDA in Lao PDR, it is expected that cargo clearance will be even faster. At present, the operation hours of border agencies is generally not seen as an obstacle to trade. Overtime of Customs and other border agencies seems to be available on request if necessary.

The main concerns regarding the border crossings and the ferry service are

- (i) Operators are unclear about clearance and overtime fees at the border
- (ii) Unsynchronized holidays between the countries create delays
- (iii) No overtime available from ferry operator

(i) The private sector is unclear on the exact fees of overtime operations. This is reflected in the survey's mixed, and sometimes contrary, responses regarding the fee structure (in Lao PDR there is generally great transparency of fees at the border, e.g. vehicle entry fee, Customs Automation fee, etc.).

(ii) Unsynchronized holidays can impede transport operations between two countries along the NSEC.

⁵ This is supported by an earlier ADB study that emphasizes the role of the public sector in developing privately-operated logistics services and improvements in border processing Anderson et. al. (2012, pp. 56, 57).

(iii) The ferry between Huayxay and Chiang Khong operates daily from 8.00–17.30. While the ferry crossing is relatively fast and takes about 40 min., the waiting time at the ferry can be 3-4 hours at peak times. Customs on both sides clear all incoming cargo (after 16.00 during overtime). As there is no overtime for the ferry service available, it is the real bottleneck at the border. However, with the completion of the bridge this issue will likely resolve.

Private sector suggestions for the *public sector*

- (a) Provide information on overtime fees at borders and other relevant points
- (b) Provide better information on holidays in each of the countries e.g. through emails and leaflets at important points for transporters (at gas stations, the Customs houses, etc)
- (c) Extend ferry service to special requests for urgent shipments
- (d) Support Lao PDR in introducing paperless trade

Exchange of Traffic Rights between Thailand, Lao PDR, and the People’s Republic of China

Issues and Concerns

Along the corridor, there are numerous bilateral agreements in place that regulate the traffic between the three countries (Thailand, Lao PDR, PRC).

The main concern regarding these agreements is:

Lack of transparency about the exact transport regulations along the corridor

There is little transparency about the exact content of bilateral agreements as they are often only available in local language and/or publically unavailable. Consequently, transporters are not aware of existing regulations and exposed to the discretion of officials on the ground. Even policy makers are sometimes not entirely clear on the status of implementation of such agreements and the current situation on the ground. The impact of new agreements and further implementation of existing ones is therefore often not fully utilized.

Private sector suggestions for the *public sector*

- (a) Provide information about agreements, laws, rules, and regulations concerning the transport sector and their impact for the private sector to establish greater transparency among the users of the NSEC. In addition, make those agreements, laws, rules, and

Cross-Border Movements along the NSEC

The *official transport regulations** presently allow the following truck movements for the three countries connected by the NSEC:

Chinese trucks may move freely in Lao PDR (no restrictions). No access granted to Thailand.

The field visit confirmed the operations of Chinese trucks in the border area (Boten) of Lao PDR and Vientiane.

Lao trucks may move freely in Thailand. Operations in the PRC are restricted up to Kunming.

The field visit confirmed Lao trucks in the border area of the PRC. Lao trucks can also be confirmed in the border area of Thailand.

Thai trucks may move freely in Lao PDR but are prohibited access into the PRC.

The field visit confirmed the operations of Thai trucks up to Boten border in Lao PDR.

**It has to be noted that there is oftentimes a significant difference between the official regulations and the actual implementation*

regulations publically available in different languages at a central location (e.g. a website).

- (b) Enforce proper implementation of existing agreements, laws, rules, and regulations to fully utilize their benefits to the national economies including the private sector.

Future Competitiveness and Other Issues

The interviews with NSEC users revealed, that with the present cargo volume, the corridor performs relatively well in terms of time, cost, and reliability. In light of expected increases in cargo volumes, further improvements are needed to ensure future competitiveness of the NSEC. Private sector respondents revealed that skill development and access to finance are vital for the ability of firms to compete in the near future and allow firms using the NSEC to participate in value and supply chains. On the other hand, backload issues and container rental conditions are low priority issues.

Skill Development along the NSEC

Generally, the logistics sector in the GMS is still relatively immature compared to international standards (Anderson et. al., 2012, p. 6). Also along the NSEC there is clearly room for improvement of the capacity of some corridor users. Most obvious are the language skills as many people do not speak English (at best workers speak another GMS language) but the lack of language skills is most obvious in the PRC and rural areas in Lao PDR and Thailand.

During the field visit it was apparent that many operators had little understanding of supply and value chains. Understanding how trades are organized is essential to provide services and service quality within the required standards. Additionally, management skills become increasingly important with the rising cargo volumes.

There are already some education and skill development institutions along the corridor, but more is needed. Increasing the language and business skill level along the NSEC offers opportunities for both the private and public sector. While the public sector could provide the training infrastructure (e.g. buildings, equipment, etc.) and a portion of the financial requirements, the private sector needs to pinpoint their priorities, provide curricula, and assist in delivering trainings.

In addition, many transport operators indicated that there are insufficient reliable and skilled drivers available in order to expand their fleet. The lack of driving skills is also often used as a plea to stop foreign trucks from entering their own territory, especially trucks from Lao PDR. Increasing capacity should be a high priority for both the public and private sector.

Access to Finance for Service Providers

During interviews, various service providers indicated a desire to expand their equipment in order to increase competitiveness in the future. This includes expanding their fleet (for transporters), buying communication and GPS equipment, or expanding the services they offer (transporters and freight forwarders). A major constraint, to date, is the ability to finance these investments.

Generally Thai and Chinese operators have a high utilization of their vehicles. For example, among the Thai operators interviewed, most trucks run between 100,000-150,000 km per year, justifying new truck investment every few years. Utilization of Lao trucks is significantly lower, and therefore more difficult to justify the investment costs. Due to the older fleet, Lao trucks are not chosen for transport because of

the higher operating costs, higher risk of breakdown, lower cargo safety, etc. In some cases access into Thailand and the PRC for those trucks is denied at the border (apparently since the trucks do not comply with traffic rules).

But the current trade and transport practices along the NSEC offer some business opportunities especially for Lao transport operators. Their trucks could play a key role in ensuring seamless transport along the NSEC because they are able to cross both borders of the NSEC, giving them a competitive advantage in the region. In order to materialize this opportunity the Lao trucking fleet must be upgraded. Enabling Lao firms to access cheaper sources of finance may break this cycle of old trucks, not getting contracts, and too low utilization of vehicles to justify investment in new trucks. Allowing Lao trucks to extend their service to Kunming will contribute to the competitiveness of the Lao trucking fleet.

While Thai and Chinese service operators are much better equipped for providing transport services along the NSEC, it is imperative, from a policy perspective, to engage Lao companies in supply and value chains. Lao PDR remains a key player as it shares borders with all GMS countries and is critical for ensuring smooth intra-GMS trade.

Eliminate Non-Tariff Measures along the NSEC

The interviews conducted along the NSEC indicated that some products (mainly agricultural produce) are not permitted across the border despite valid bilateral and multilateral free trade agreements. Allegedly, those goods do not comply with existing SPS, cargo safety standards, or other rules and therefore infringe upon those agreements. These non-tariff barriers must be eliminated to utilize the benefits from free trade (beyond the scope of this study). In addition, countries in the region must be educated on how to fulfill the various product standards etc. to comply with existing laws, rules, and regulations.

Coordination of Backloads

Backloads are currently not a serious problem for agricultural products because transporters are often also traders and have partnerships across countries. In many cases, they arrange backloads just by coordinating with their partners thus reducing transport costs. Similar observations have been made for handicrafts and consumer products, although this pattern seems to be much less common there and transport services are usually outsourced.

To improve efficiency of transport along the corridor, backloads could be better coordinated when no backload arrangements are in place. A possible solution could be a website where demand for transport is matched with supply. Similarly, transport companies could advertise their service to fill their (empty) return. The website will not interfere in issues such as insurance, payment terms and conditions of carriage as it is only a tool to initiate the contact between supply and demand for transport service. Such a website may reduce transport costs along the corridor by increasing efficiency.

Short Container Rental Times from Shipping Lines

There is lots of ambiguity about the container rental from shipping lines. Shipping lines prohibit using their containers for backload cargo and enforce this policy by setting tight deadlines for returning the container to the port/container yard. For delivery to the PRC, shipping lines usually loan their containers between 3-7 days which is often too short for a roundtrip transport of the container (including appropriate unloading time for the customer). For any additional day the shipping line charges around

USD 13 (THB 500). In addition, the container deposit to be made by the transporter is around USD 3,400 (THB 100,000) which significantly limits the working capital of transport companies.

Even the private sector is unclear whether only the shipping lines prohibit backloads or whether also other stakeholders are involved, as survey participants gave inconclusive responses. Potential future research could focus on this issue. However, while this creates constraints for the operations of transport companies engaged by shipping lines, it remains a low priority. The field visit indicated that the present volume of trade with ocean freight containers along the NSEC is very small. Also prospects for growth of this trade remain low for two reasons:

- (1) Most trade along the NSEC is conducted among the three countries with only small volumes beyond; and
- (2) Both Bangkok and Laem Chabang ports are not the major suppliers of Yunnan province. The ports of Hong Kong (third largest container port in the world) and Shenzhen (fourth largest)⁶ are roughly at a similar distance away from many economic centers of Yunnan province without having to cross any land borders (on NSEC: two land borders to cross).

Yet, it will be important in the long-run to solve this issue between shipping lines, Customs, transport operators, and other stakeholders involved.

Guidance for Stakeholders

The above mentioned private sector suggestions should be treated with different priorities. This section aims to provide stakeholders with a clear list of priorities to improve the NSEC transport operations in order to fully utilize the benefits of the corridor.

Short-Run Priorities (as soon as possible)

The highest priority should be given to **introduce greater competition among LoLo-service providers** in order to reduce the costs for LoLo-operations. Despite the operation and acquisition of cranes and other equipment is the responsibility of the private sector, the aid of the public sector might be needed as the costs of equipment are high and present a significant market entry barrier.

Simultaneously the private sector needs to introduce **container swap agreements** to support the transshipment operations with the necessary contract arrangements.

Also, the **completion of the Fourth Friendship Bridge** needs to be given utmost attention. This will have a significant effect on transit times at the borders – the waiting time at the ferry can be eliminated (40 min. river crossing plus 3-4 hours at peak times). It is further expected that the new border facilities including the roll-out of ASYCUDA in Lao PDR will speed up the clearance process.

⁶ <http://www.portofhamburg.com/en/content/container-port-throughput-global-comparison>

Medium-Run (within 1-3 years)

In the medium-run, progress in both the border infrastructure and border crossing agreements needs to be made.

On the infrastructure side, the border facilities are expected to be completed together with the Fourth Friendship Bridge, including the common control area, the x-ray, etc. **Establishing and upgrading other border facilities** such as a cool chain warehouse could provide lacking services and enhance the corridor's reliability of quality assurance. In addition, the warehouse could function as a basic storage facility where truckers could bridge waiting times by storing (cooling) containers or offer value-added services such as packaging, labeling, etc. This warehouse could be operated under a public-private partnership agreement.

Long-Run (more than 3 years)

Enhancing road and traffic safety is a long-term priority. This includes both the upgrading of existing road infrastructure as well as installing some additional safety measures. For example, the construction of brake paths and upgrade of bridges in Lao PDR are inevitable to ensure safe cargo transport. Building speed bumps (before villages and towns), sidewalks, flyovers, and small bridges (in villages) are vital to avoid future pedestrian fatalities and ensure the use as for them the use of the road is their lifeline for their livelihood. Also the Lao national roads should be upgraded to match the NSEC weight limit.

The negotiation of the **free movement of trucks among all GMS countries** is politically the most challenging long-term priority as it involves strong political will for implementation, although some breakthroughs have been achieved in the recent past. Despite the remaining difficulties and reservations, the benefits of such an agreement greatly outweigh the costs. Enabling transport to carry cargo without transshipment would save both time and costs for NSEC users and would be an important step to increase competitiveness of the corridor. A positive example is the European Union where trucks from all member countries and beyond transport cargo to any destination in the customs union.

Permanent Efforts

There are some permanent measures that are critical to the success of the NSEC such as the **provision of information about the corridor, its services, and performance.**

A central location, e.g. a website and other frequently accessed points by truckers, could facilitate information exchange and improve transparency of existing agreements. Ideally, the website should be available in all GMS languages and English with regular updates.

The website should include information about the

- border opening times and holidays allowing truckers to properly organize their business activities;
- completed infrastructure upgrades and maintenance of the corridor as many importers/exporters – often do not know the present state of the roads;
- current status of implementation of existing agreements to raise awareness about current rules and regulations; and

- corridor performance, e.g. such as cost, times, reliability of the NSEC in order to provide guidance for policy makers as well as for importers/exporters/traders to assess the viability of a specific transport route.

This website could also be used to coordinate backloads where both demand and suppliers of transport services could meet virtually to increase efficiency of operators and decrease transport prices in the long-run.

Appendices

Appendix I: Methodology

Survey Design

This study relies on qualitative and quantitative research methods, including desk research and fieldwork. The desk research provides a broad understanding of current agreements in place and an overview of general logistics and transport challenges of the private sector in the region. The field research compliments and clarifies open questions and offers first-hand insights into the situation on the ground.

Within the field research, extensive interviews are conducted with both transporters/freight forwarders/logistics companies as well as importers/exporters/traders, as they are the organizers of supply chains. Whereas transport service providers help shed light on present logistics challenges on the ground, the importers/exporters/traders provide valuable information specifically on the selection of particular trade routes and the considerations that play the most important role when organizing the supply chain.

Field research took place in:

- Thailand: Bangkok, Chiang Mai, Chiang Rai, Chiang Saen, Chaing Khong,
- Lao PDR: Huayxay, Boten border, and
- The PRC: Mohan border.

Sample Selection

A total of 44 interviews took place over a period of four weeks (April/May 2012). The sample consists of the following kinds of firms (see Table 1 below):

Table 1: Overview of Meetings by Stakeholder

8	Freight Forwarder
12	Transporter
2	Trader
5	Customs Broker
4	Manufacturers of Industrial Products
13	Other Meetings*
7	Other Activities**
51	Total

* Incl. meetings with trade promotion agencies, chambers of commerce, informal meetings with government agencies

** Incl. site visits to transshipment facilities, border points, construction sites, etc.

Transporters/freight forwarders/logistics companies: firms operating along the NSEC and involved in international transport operations, either through providing the cross-border movement by themselves, with foreign partners, in joint-ventures, etc. Companies were selected with the assistance of the

respective associations (Thai, Lao Transport and Freight Forwarders Associations, etc.), referrals from other respondents (snowball sampling), and personal contacts.

Importers/exporters/traders: firms that either buy/sell their goods from/to sellers/buyers within the region and use the NSEC to transport their imports/exports or from/to overseas sellers/buyers using the NSEC as a transit route. The firms were selected according to referrals from other respondents (in many cases their client or business partner) (snowball sampling), direct enquiries via phone, and personal contacts.

Limitations

Since the majority of firms operating along the NSEC (both transport service operators and importers/exporters/traders) are small (except for those located in Bangkok), great difficulties in identifying and approaching potential respondents were encountered. In addition, the sample selection for interviews was further narrowed by the availability and accessibility of the selected firms during the time of the field trip.

Appendix II: Trade

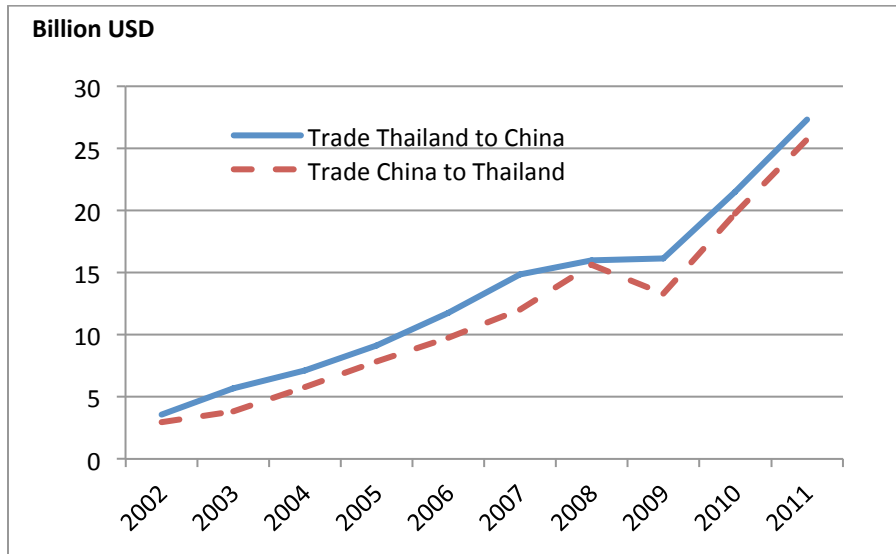
According to UN Comtrade trade statistics (Table 2), there is extensive trade between Thailand and the PRC (national level data). Total trade amounts to approximately USD 53 billion in 2011 (June 2012). Trade between Thailand and Lao PDR, on the contrary, is much lower with around USD 3.9 billion in total, and USD 1.3 billion between the PRC and Lao PDR. The growth rate of trade among the three countries has been very high (Figure 3). For example, total trade between Thailand and the PRC (imports and exports) grew from USD 6.5 billion in 2002 to almost USD 53 billion in 2011 (Figure 2), an average annual growth rate of 27% (year on year). Similar rates of growth have been achieved between Thailand and Lao PDR (27%) and were even outperformed between Lao PDR and the PRC (42%).

Table 2: Total Trade between Lao PDR, Thailand, and the People's Republic of China, 2011 (in USD)

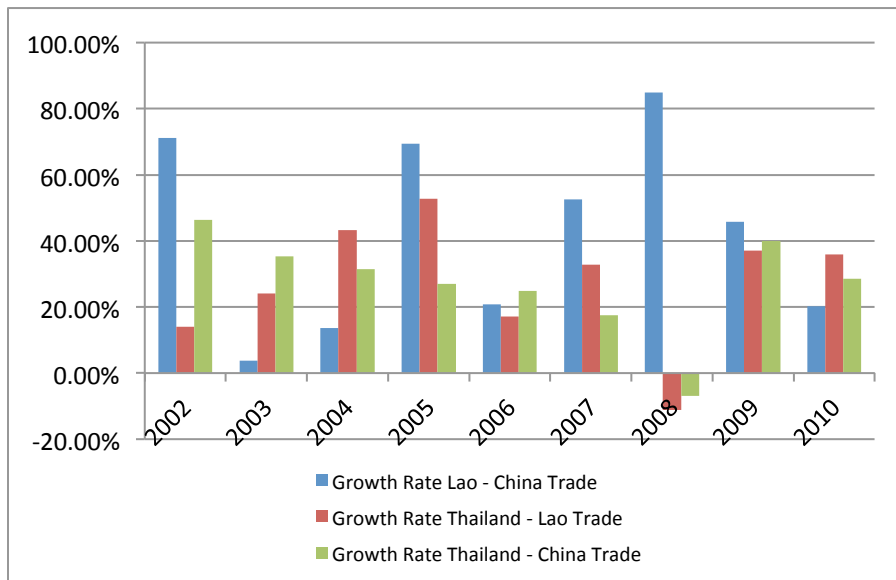
Exporter/Importer	Lao PDR	Thailand	China
Lao PDR	XXXXXXXXXXXXXXXXXXXX	1,129,721,000	827,588,000
Thailand	2,789,524,000	XXXXXXXXXXXXXXXXXXXX	27,402,402,000
China	476,255,000	25,694,604,000	XXXXXXXXXXXXXXXXXXXX

Source: UN-Comtrade (2012)

The trade balances (exports less imports) between these three countries is important to note. On the national level, Thailand has generated a positive trade balance against both the PRC and Lao PDR for the past decade. For 2011 only, the positive trade balance with the PRC amounted to USD 1.70 billion and with Lao PDR USD 1.66 billion. This underscores the importance of exports for the Thai economy. With the increasing trade values, trade balance between Thailand and Lao PDR has increased steadily from USD 300 million in 2002 to USD 1.6 billion in 2011. On the other hand, the relative share of the trade balance between Thailand and the PRC has continuously fallen as the absolute trade balance with the PRC remained almost constant throughout (within a band of USD 1.3-1.8 billion) and trade increased between Thailand and the PRC.

Figure 2: Trade Flows between Thailand and China 2002-2011 (in USD)

Source: UN-Comtrade (2012)

Figure 3: Growth Rates of Trade between NSEC Countries, 2002-2011 (year on year)

Source: UN-Comtrade (2012)

From 2002 to 2009, Lao PDR had a negative trade balance with the PRC. In the early 2000s, exports from the PRC into Lao PDR were more than eight times higher than respective imports. However, in the past two years (2010 and 2011) this trend reversed strongly. In 2011, Lao PDR accumulated a large trade surplus of USD 351 million, close to three times the size of the largest deficit in the past decade.

Nevertheless, comparing the national data is somewhat misleading because cross-border trade in the GMS is in general still fairly small compared to the volumes going through maritime gateways. In addition, the national data for the PRC is not necessarily congruent with the data of Yunnan province and only a small fraction of trade is actually transported along the NSEC. A better indicator for trade along the

NSEC is trade between Yunnan province and e.g. Thailand as well as border trade between Thailand and Lao PDR and Lao PDR and the PRC through respective border points along the NSEC.⁷

Along the NSEC there are three types of international trade: (1) border trade, (2) transit trade, and (3) regular imports/exports. The Thai ports function mainly as a gateway for Thailand's international trade including trade with the PRC and other GMS countries. Therefore, most truck movements along the NSEC in Thailand are domestic trips with the Thai trucking sector functioning as a distributor/collector of ocean cargo in Thailand. As there is only very little ocean cargo transported along the NSEC to Northern Lao PDR and Yunnan province, traffic with ocean trade is decreasing with the increasing distance from the port.

Most of the international trade along the NSEC is therefore bilateral trade between Thailand, Lao PDR, and the PRC. The majority of this transit trade is transported on the R3A through Lao PDR (as opposed the R3B through Myanmar). The transit system in Lao PDR works relatively well and is available at reasonable costs (USD 250).⁸

Total exports of Thailand (all provinces) to Yunnan amounted in 2011 to USD 631 million, or 2.3% of total exports from Thailand to the PRC. Total imports from Yunnan province to Thailand in 2011 reached close to USD 243 million, or almost 1% of total Thai imports from the PRC. Among the trade going through the Chiang Khong Customs house, trade with PRC dominates activities at the border. Around 2/3 of all imports and 60% of all exports through Chiang Khong Customs House are to/from the PRC. Lao PDR accounts for roughly 1/3 for both imports and exports, and Myanmar for the remaining 5% in exports.

The principal products exported from Yunnan province to Thailand (all provinces) are garments, vegetables, optical/photo/technical/medical products, and fruits, accounting for roughly 57% of total imports. Other key products are computers, computer parts, furniture, chemicals, bags, machinery, and fuses (see Table 3). The main products exported from Thailand to Yunnan province are computer equipment, petroleum products, and cars/parts. These three product groups capture around 83% of all goods traded. Other products are fruits and vegetables, palm oil and rubber products (see Table 4).

The data in Table 3 and 4 suggests that while some product groups are well represented in transport along the corridor (e.g. agricultural products, petroleum products, etc.) other product groups are hardly represented at the moment such as car and computer parts northbound from Thailand to Yunnan. These are likely to be carried by sea. Reasons for that could be

- Doubts about the reliability of service quality/service providers along the corridor;
- Doubts about the cargo safety since goods have to be either transloaded or lift-off/lift-on twice and transported by the ferry; and/or
- The process to arrange two LoLo-operations is too complicated.

In any case the potential for the NSEC is enormous given the majority of trade between Thailand and Yunnan province is presently not transported via the NSEC. Estimations by the study team suggest that potential trade could be more than USD 500 million per year. In addition, the introduction of the ASEAN Economic Community (AEC) to be launched in 2015 will further promote intra-GMS trade by means of

⁷ No data was obtained for border trade between Lao PDR and the PRC.

⁸ In the medium-term, the possibilities of lowering these trade costs should be explored.

simplified trading and border procedures. Although the exact impact of the AEC is unknown at this stage, it is expected to generate increased land transit traffic movements between member states using existing routes. Despite these trends, it is still considered that the maritime mode is likely to remain dominant in trading for the GMS countries not only for third country trade but in some cases for intra-GMS trade (Anderson et. al., 2012, p. 74). But in order to attract more ocean trade, the corridor needs to ensure highest levels of reliability (transport times, predictability, prices, service quality, etc.) at reasonable costs and competitive lead times.

Table 3: Yunnan Exports to Thailand, 2011 (top products in USD and as percent of total)

	<i>% of Total</i>	<i>In USD</i>
Garments	19.20	46,653,054.76
Vegetables and flavors from vegetables	14.73	35,782,209.56
Optical, photo, medical apparatus etc.	12.38	30,089,585.31
Fruits and flavors from fruits	11.56	28,093,383.98
Computer parts	4.32	10,485,596.71
Furniture, lighting, signs, etc.	4.29	10,422,918.65
Computers and parts	3.49	8,469,135.80
Inorganic chemicals, etc.	2.73	6,628,363.41
Bags	2.61	6,351,693.57
Machines and parts	2.29	5,574,548.91
Safety fuses	2.02	4,904,083.57
Transmitters and parts	1.92	4,675,530.23
Misceallaneous Equipment	1.70	4,137,068.69
Cotton	1.60	3,881,291.55
Printed circuit board	1.11	2,693,573.92
Top 15 Products	85.95	193,454,574.23
Total	100.00	242,979,740.42

Table 4: Thai Exports to Yunnan, 2011 (top products and as percent of total)

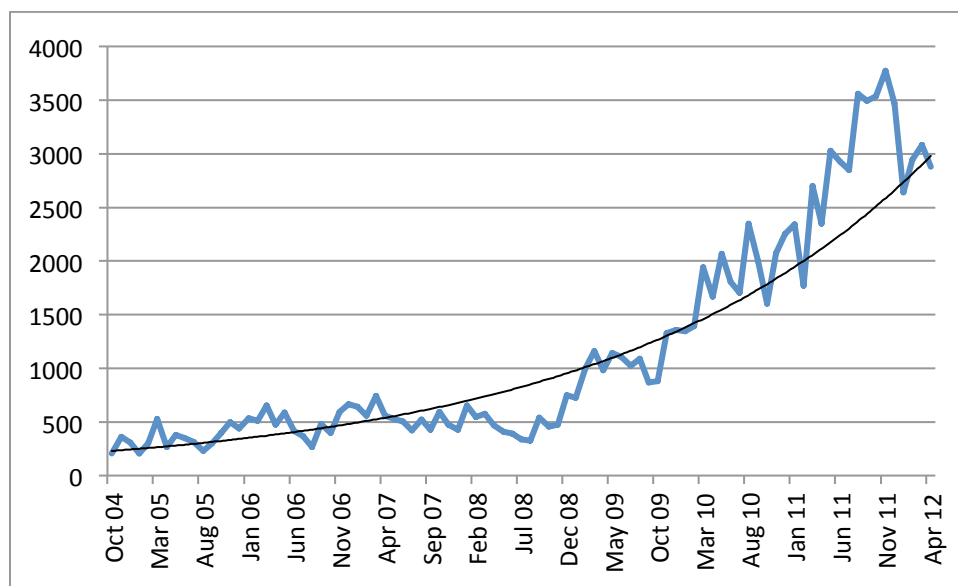
	<i>% of Total</i>	<i>In USD</i>
Computer equipment	62.19	392,567,584.68
Diesel oil	11.48	72,476,416.59
Cars and parts	6.02	37,996,517.89
Gasoline	3.37	21,251,028.81
Fruits (fresh, dry, frozen)	2.92	18,424,817.98
Palm oil	2.86	18,064,577.40
Rubber trees	1.44	9,092,434.31
Rubber products	1.02	6,455,523.90
Top 8 Products	91.30	576,328,901.55
Total	100.00	631,193,099.08

Appendix III: Traffic

Road transport is the major mode of transport in GMS countries. However, there is no direct correlation between trade (in value) and the tonnage of cargo being physically moved and hence no direct relation of trade and traffic (Anderson et. al., 2012, p. 59). This fact can be partly explained by price fluctuations, volume and weight differences of different products. For example, large volume or heavy weight products with low value can increase the truck traffic while having little effect on the value statistics. Contrary, small, high value products (e.g. electronics) can inflate the trade statistics while there is little effect on the truck traffic. In addition, the trade statistics do not account for trade imbalances. This means that empty trucks are counted as well as full trucks and thereby can lead to further mismatch of traffic and trade.

Nevertheless, it is useful to consider traffic development, especially cargo traffic, along the NSEC. While good traffic data is available in Thailand, for Lao PDR only traffic data for April 2012 was obtained and none for the Chinese road section of the NSEC.

Figure 4: Monthly Truck Traffic at Chiang Khong Customs House, 2005-2012



Source: Chiang Khong Customs House (2012)

Truck traffic in- and outbound between Thailand and Lao PDR through the Chiang Khong Customs Point has grown more than seven-fold between 2005 and 2011 (Figure 4). Projections for 2012 indicate a further growth of 7,000 trucks, or 50%, compared to the same reporting period a year earlier (October to April).⁹ Hence, daily traffic comes presently to around 40-50 trucks per day per direction.

An eight-year analysis of trucking patterns on this border underscores high and low traffic seasons and recent changes. For instance between 2005 and 2011, peak seasons are in March, May, August, and September, where monthly truck volumes reach more than 2,500 incoming and outgoing trucks per month, or daily 80-100 trucks per day. Low months are January, February, and October, where truck volumes are at around 2,000 per month (~70 per day).

⁹ Chiang Khong Customs House Data. It combines both incoming and outgoing traffic.

According to various logistic and shipping companies, with the opening of the Fourth Friendship Bridge truck traffic is expected to increase exponentially as this will eliminate one of the main bottlenecks along the corridor (ferry service).

Also some data for the Boten border have been obtained, although only for the month of April 2012 (Table 5). According to this data, a total of 1,582 trucks have passed the border (only incoming traffic from China). Around 2/3rds of these go along the NSEC (R3A) to Huayxay while the other third goes via the 13N direction Vientiane. It is also important to note that around 75% of trucks along the NSEC are container trucks that are presumably crossing the border to Thailand. Since April is not a peak months, it is reasonable to assume that traffic increases at the border as much as 30% during peak season.

Table 5: Inbound Truck Traffic R3A and 13N for Luang Namtha Province, April 2012

Boten to Huayxay	Boten to Vientiane
262 Trucks	520 Trucks
750 Trucks (Container)	
Total 1,582 Trucks	

Source: Government of Lao PDR (2012)

Appendix IV: The NSEC Logistics System from a Supply Chain Perspective

On the macro-level, a functioning logistics system consists of four main elements: (1) shippers, consignees; (2) service providers; (3) an institutional framework; and (4) infrastructure (Banomyong 2008). Along the NSEC, it is important to note that often no clear distinction can be made between service providers, shippers and consignees. Frequently, service providers such as trucking firms have their own trading operations and do also customs brokering. To make trade viable, firms partner with traders in the destination country to fill the truck for its return.

(1) While there are few large shippers and consignees that trade along the NSEC located in the economic centers of the three countries, there are a lot of small and medium size companies and traders with lower trading volumes. The range of involvement in supply chains and production networks varies greatly with some firms supplying retailers and others only shipping goods occasionally. It is usually the buyers who determine the supply chain although in some cases this authority is given to the transporter or freight forwarder.

(2) There are a large number of service providers operating along the NSEC. The domestic logistics industry in the GMS region is relatively immature due to the lack of demand drivers in the domestic sector, such as major retailers and manufacturers capable of dictating their supply chains, the limited presence of multinationals and a willingness to outsource (Anderson et. al., 2012, p. 58). The PRC and Thailand have a more advanced trucking sector with large numbers of heavy transport vehicles, whereas Lao PDR is dominated by small rigid vehicles. This profile is to a certain extent reflected in the differing axle loads with Lao PDR only having a 9.1 ton axle load limit, whereas the PRC (10 tons) and Thailand (11 tons) have higher axle load limits (Anderson et. al., 2012, p. 35). Many of the transport companies are small and medium in size with limited know-how/capacity and working capital. This could explain why most of the companies operating on this corridor do not operate on others. The Thai trucking industry

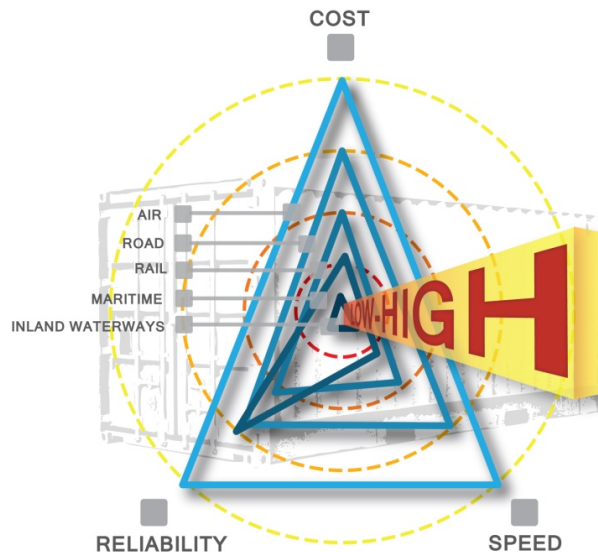
has also a competitive advantage because of their relatively high utilization of their trucks. Among the companies interviewed, most trucks run between 100,000-150,000 km per year which is sufficient to justify the investment in new trucks every few years. In addition, the Thai fleet along the corridor is relatively new because this road only emerged as an active trading route in the past 5-10 years. For Lao PDR and PRC no such numbers have been obtained during the survey. However, in China the team observed a relatively new trucking fleet (mostly local trucks), in Lao the fleet consists of many second-hand vehicles, many of them ten years or older with low fuel-efficiency and high maintenance costs. Forwarding services are provided only by local, small/medium sized firms that offer domestic and international service in and between Thailand, Lao PDR and PRC. Some of those firms deliver cargo also beyond to Japan, Korea, and Taiwan. Standard services offered include door-to-door service, cold chain, warehousing, and Customs clearance. Overall, there is strong competition among the service providers, especially in the low-price segment.

(3) The current institutional framework limits the competition of the transport sector among the three countries. Presently, Thai trucks are not able to enter the PRC and vice-versa. On the other hand, Lao trucks may enter both Thailand and the PRC, although their access is somewhat restricted, too. From a regulatory perspective, this puts Lao trucks at a competitive advantage. In addition, there exist free-trade agreements (FTA) between the PRC and ASEAN countries as well as among Thailand and China (2003). The China-Thailand FTA for agricultural products cuts tariffs to zero for 188 types of fruits and vegetables and the China-Lao FTA covers some 150 agricultural products. However, in practice there are still restrictions for some agricultural products as the PRC strictly applies SPS and quality standards. While Thailand is able to overcome these non-tariff measures, Lao PDR has little leverage.

(4) The corridor infrastructure has been upgraded over the past years. The corridor is in excellent condition in Thailand and the PRC with four-lanes throughout (two in each direction) including appropriate road signs, road marking, and sometimes even hard shoulders. In the PRC the road signs are in multiple languages (Chinese, English, Thai). In Lao PDR, the Thai-built section of the corridor did suffer from poor quality with many potholes and roadside collapses only two years after completion. However, this has been fixed and presently the existing road (two lanes) is generally in good condition (April 2012).

Within a functioning logistics system, the three components time, cost, and reliability have to be optimized (see Figure 5). Certainly all are important but to variant degrees depending on the product (type, value, perishability, special requirements, etc.), the buyer (whether engaged in supply/value chains, production schedule, etc.), financial budget, availability/quality of transport services and modes, own working capital (if payment completed after the transport or if a specific mode of transport is particularly costly), etc. Each industry/firm values time, cost, and reliability differently and opts for different transport services according to their priorities.

However, Anderson et. al. (2012, p. 6) found that the logistics industry in the GMS at large will need to further diversify to handle a greater variety of products and offer more services. Particularly the development of 3-PL services will be key to maintain growth in trade with both developed and developing countries.

Figure 5: The Trade-off between Time, Cost, and Reliability

Source: Anderson et. al. (2012, p. 22).

Appendix V: The NSEC Infrastructure

Thailand

The corridor infrastructure from Bangkok to Kunming (R3A) is presently in very good condition. In Thailand, the road has almost throughout four-lanes (two in each direction) with appropriate road signs, road marking and sometimes even shoulders. While the official NSEC runs from just before Chiang Rai via Thoeng to Chiang Khong, there are substantial ongoing road works on the way from Chiang Rai to Chiang Saen. This road seems to be in the process of an upgrade to support the port in Chiang Saen handling cargoes from Yunnan Province.

Lao PDR

The road from Huayxay border to Boten border stretches over a total length of 250 km. This road section opened in 2008 and was built with the aid of Thailand, ADB and the PRC (from south to north). The Thai section of the corridor did suffer from poor quality with many potholes and roadside collapses two years after completion, but this was fixed since 2010. Presently the existing road (two lanes) is generally in good condition (April 2012). However, the corridor traverses mountainous areas with steep slopes and many curves. This slows heavy traffic uphill and requires braking hard downhill. There are no brake-paths along the road. Some bridges are designed for traffic of 20 tons which is insufficient to hold the weight of the present heavy traffic (up to 49 tons). While the weight limit along the NSEC is standardized, it is significantly lower for Lao national roads. This is important because not all incoming traffic from Boten border remains on the corridor. There is a significant share going via National Road No. 13 to Vientiane and other important cities in northern Lao PDR.

China

In the PRC, the road (highway) is in excellent condition with four lanes (separated by a safety fence) and shoulders almost throughout to Kunming. Instead of going over the mountainous area in the PRC, the road leads through many tunnels, all with appropriate lighting and other safety standards. In addition,

the road signs are given in multiple languages such as Chinese, English, and Thai (confirmed for the first 20 km after the border).

Ferry between Thailand and Lao PDR

At present, road traffic between Thailand and Lao PDR uses ferry boats to cross the river. Each ferry has a capacity of 1-4 (50 ton) trucks. The ferry operates from 8.00 to 17.30. The actual crossing is relatively short (40 minutes), but the waiting time for the ferry can be a few hours during peak traffic but goes relatively quickly at normal traffic hours. The price for the ferry is USD 50 (THB 1,500) per truck from Lao PDR to Thailand and USD 60 (THB 1,800) from Thailand to Lao PDR. The ferry service is operated by two firms, one in each country. Each company has the monopoly for traffic from its home side, and goes back empty. This is the same for passenger boats operating across the river. This ferry service will most likely terminate with the completion of the bridge.

Mekong River Bridge and Border Facilities

The bridge between Chiang Khong and Huayxay is presently under construction. The bridge is expected to open in July 2013, a delay of six months from the previous schedule (Ongdee 2012). After visiting the site, the construction works appears to be progressing. With the bridge, there will be also a new border crossing area. This area will feature several lanes to perform border controls, Immigration/Customs on-site, a common-control area, and an x-ray scanner. However, the land plan indicates that there will be still two border control facilities, one on each side of the river.

The present border facilities are located on the way to the boarding gate for the ferry both for incoming and outgoing traffic. For the incoming traffic there is a small inspection area where the cargo is usually inspected by opening the container and taking a sample of the cargo (usually only the container is opened and a sample from the boxes closest to the door taken). There are no x-ray facilities and the results of the x-ray are not shared between Thailand and Lao PDR. However, once the samples are taken, the cargo receives a seal and is checked through to the final destination.

Transshipment Areas

As transshipment of cargo takes place on several occasions along the NSEC (although it is necessary to transship only once for trade between Thailand and the PRC and never between Lao PDR and Thailand or the PRC) there are several transshipment areas along the NSEC. And of them, each area is dedicated to certain products:

Chiang Khong, Thailand: According to some private sector firms, they transship cargo in Chiang Khong from / to Chinese and Lao trucks) although the research team was not able to locate those transshipment facilities.

Huayxay, Lao PDR: There is a small yard however the activities remain small scale with the use of only labor and no significant equipment.¹⁰

Boten, Lao PDR: There are two major transshipment facilities and some smaller ones. The largest one, operated by LS Trading, is a very large area just outside the Boten Special Economic Zone (SEZ) and

¹⁰ Some respondents stated that exchange of trailers occurs in some cases in Huayxay, although this was not observed by the study team.

around 5 km from the Boten/Mohan border. It offers space for roughly 200 trucks per day (100 bringing cargo and 100 picking up the cargo) with the busiest time in the morning. The present truck volume is around 100 trucks per day. During the day, even more trucks could be handled. LS Trading handles mostly transit cargo from Thailand to the PRC and vice-versa (including from other customs brokers) and the majority of products transshipped are made up by fruits and vegetables. The transshipment process takes around 3-4 hours and costs approximately USD 50. All transshipments are done with manual labor as there is no forklift or other equipment. In the future, LS Trading plans to buy a gantry crane to make transshipment (LoLo) more efficient.

There are also a few transshipment facilities for oil and petroleum trucks along the road between Luang Namtha and Boten border. The area inspected, approximately 10 km from the border, did not have any equipment – the trucks carry their own pumps. With those, the transshipment takes one minute for every 1000 liters to transfer the products onto Chinese tankers.

In addition, there is a warehouse which handles border trade between PR of China and Lao PDR around 15 km from the border.

Mohan, PRC: The Xishuangbanna Dawei Trade Co. Ltd. is a customs bonded warehouse where cargo is transferred between trucks from the PRC and Lao PDR. The facility located around 5 km from the border offers a warehouse and an open area with a gantry crane. Most of the cargoes handled are construction materials and other general cargo for ongoing projects in Lao PDR. It appeared that the warehouse functions as a collection and consolidation point for those construction materials. In addition, it seemed the warehouses were also used to store agricultural products. The gantry crane offers the possibility to transfer containers between trucks although not much container traffic was observed.

The China Mohan International Logistics Center is a very large facility with an estimated area of 500,000 square meters with more than 50% of the area dedicated for storing tree roots from Laos (open area) and wood products (logs, planks, etc.) and several medium sized warehouses. Other cargo includes agricultural products (in sacks) and charcoal (apparently coming from Lao PDR but could not be verified). The area is around seven km from the border.

There are also a few additional, more informal places to store roots and other wood products nearby the border (within 15 km).