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Transport and Logistics in Lao PDR: Impact of the ASEAN Economic Community

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On behalf of the
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Abbreviations

3PL	Third Partly Logistics
ACTS	ASEAN Customs Transit System
ADB	Asian Development Bank
AEC	ASEAN Economic Community
AEO	Authorized Economic Operators
AFAFGIT	ASEAN Framework Agreement on the Facilitation of Goods in Transit
AFAFIST	ASEAN Framework Agreement on the Facilitation of Inter State Transport
AFAMT	ASEAN Framework Agreement on Multimodal Transport
ASEAN	Association of Southeast Asian Nations
ATM	ASEAN Transport Ministers' Meeting
CBTA	Cross-Border Transport Agreement
CFR	Cost and Freight
CLMV	Cambodia, Lao PDR, Myanmar, Vietnam
CMT	Central Management Team
ERIA	Economic Research Institute for ASEAN and East Asia
EU	European Union
EUR	Euro
EWEC	East West Economic Corridor
FEU	Forty Foot Equivalent Unit
FOB	Free on Board
FRETA	Freight Transport Association
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GMS	Greater Mekong Sub-region
GVW	Gross Vehicle Weight
HFTA	Myanmar Highway Freight Transport Association
ICD	Inland Container Depot
ICT	Information and Communication Technology
LAK	Lao Kip
LCL	Less than Container Load
LIFFA	Lao International Freight Forwarders Association
MNC	Multinational Companies

MoU	Memorandum of Understanding
MRA	Mutual Recognition Arrangements
NCTS	New Computerized Transit System
NERI	National Economic Research Institute
NESDB	Thai National Economic and Social Development Board
NSEC	North South Economic Corridor
NSW	National Single Window
NTB	Non-Tariff Barrier
NTFC	National Transport Facilitation Committee
RELATED	Regional Economic Integration of Laos into ASEAN through Trade and Entrepreneurship Development
RMF	Road Maintenance Fund
SEZ	Special Economic Zone
SMEs	Small and Medium-sized Enterprises
SOE	State-Owned Enterprise
STOM	Senior Transport Officials Meeting
TFWG	Transport Facilitation Working Group
THB	Thai Baht
TTCB	Transit Transport Coordinating Board

Exchange Rates

1 EUR = 10,000 LAK

1 EUR = 1,25 USD

1 EUR = 40 THB

Executive Summary

This study was prepared under GIZ's *RELATED* project. The objective of the study is to provide an overview of the transport and logistics sector in the Lao PDR using a value-chain approach, both for freight and passenger transport. The study aims to identify potential benefits and challenges presented to Lao PDRs transport and logistics sector by the establishment of the ASEAN Economic Community.

Contribution of the Transport and Logistics Sector to the Lao Economy

The value of the transport and logistics sector to a country's economy is both direct, in terms of employment and revenues generated, and also indirect in terms of the value which its services add to the products and services of the manufacturing, extractive, trading, and tourist sectors.

There are little data and statistics available that highlight the contribution of the transport and logistics sectors to the Lao economy such as employment and revenues generated. As a consequence it is difficult to calculate a precise contribution of the sector to economy. However, it is estimated that the contribution levels at about 4% of GDP which is lower than the average contribution for developing countries of 8%. The low figure is compatible with the observed low level of participation of Lao companies in international transport and the high level of informal employment in the Lao transport industry.

The Lao Transport and Logistics Sector

The study found a generally underdeveloped transport sector in the Lao PDR with operations primarily on domestic routes, and with good foreign partners on international routes in passenger transport. For freight transport international routes are limited to mainly Vietnam carrying mainly timber and minerals.

For import and export freight, there is a high dependence on foreign, mostly Thai, Vietnamese and Chinese trucks, and only a token Lao presence in the international freight transit market. Offerings for value-adding services to agricultural, manufacturing and trading sectors by Lao firms is presently very limited. The technical standards of freight operations in particular i.e. in terms of safety, vehicle maintenance, vehicle loading, driver performance, vehicle age and specification do not meet the requirements of international supply chains. Further development of the industry is held back by a shortage of semi-skilled and skilled staff such as drivers and mechanics, lack of awareness of opportunities that participation in international supply chains offers, and a lack of training opportunities to remedy this shortage. Additionally, the quality of the Lao transport fleet is too low to compete against regional competitors because of a shortage of funds to buy new vehicles. But more importantly, there is at present very little confidence among Lao operators that the investments necessary to take on the international competition could produce sufficient returns to warrant such an investment.

Prospects under the ASEAN Economic Community

In addition to existing challenges within the industry, the impact of the ASEAN Economic Community is anticipated to be predominantly negative on the Lao transport and logistics industry unless strong counter-action is taken.

While it is expected that the ASEAN Economic Community is expected to indirectly benefit the industry by increased production and trade and hence fueling overall economic growth, these impacts are estimated to represent only an annual increase of 1% over the existing trend. The direct impact, however, will likely be far more important, for example:

- (i) As ASEAN Economic Community transit permits are issued to all member states, the already strong competition from foreign trucks on imports, exports, and transit routes will increase.
- (ii) The increased exchange of traffic rights, allowing trucks to venture further into foreign territories, will eliminate the transshipment business over time. This is today present at all major borders and consequently Lao businesses will have to close down at those borders, mostly rural areas that do not offer much other employment opportunities.
- (iii) Transit permits issued under the ASEAN Economic Community will be available to operators from all ASEAN member countries under the Authorized Economic Operator scheme, taking away the monopoly of Lao Customs brokers on transit routes for a most lucrative business. This just adds to the increased competition on the import, export, and transit business.
- (iv) The investment liberalization under the ASEAN Economic Community will allow ASEAN nationals to buy or hold up to 70% of a Lao company. This will enable them to set a foot in Lao PDR and set up operations potentially replacing Lao firms.

The influx of foreign firms into the sector will increase competitive pressure and thus enhance the overall performance of the industry. This will benefit the Lao economy but at the same time push out present service providers that operate under a more traditional business model.

With the current infrastructure deteriorating due to much foreign heavy traffic, Lao PDRs ability to raise revenues from foreign trucks through levying transit or road-user fees is limited due to commitments made under international agreements such as the Greater Mekong Sub-region Cross-Border Transport Agreement as well as the ASEAN Framework Agreement on the Facilitation of Goods in Transit.

But the ASEAN Economic Community also offers enormous potential benefits for the logistics industry of the Lao PDR. The transit permits being issued to all ASEAN member states trucking fleets are also issued to Lao operators and the allocation to Lao PDR will be proportionally greater (compared to its volume of shipments generated) than that to Thailand or Vietnam. With its strategic location bordering four ASEAN member states, the Lao PDR offers a large potential for participation not only in Lao import/export movements but also in cargo transit traffics within ASEAN as well as between ASEAN and China (similar to the Netherlands and Belgium within the EU). The market for these freight services is likely to grow in the near future as broad-based regional GDP growth is magnified by an increase in production of high-value merchandise in new factories based in Southwest China, Northern Thailand and Vietnam. These factories are linked to regional supply chains for components and final products.

However, to succeed, the Lao transport industry will have to develop rapidly both in terms of size and of quality of services offered. The alternative to such development is marginalization. Not only will the existing Lao participation in transit traffics such as transshipment and Customs transit formalities decline

drastically with implementation of ASEAN Economic Community regulations, but even the domestic market could be increasingly open to subsidiaries of foreign competition, especially from Thailand and Vietnam.

Conclusion and Recommendations

The Lao economy could certainly survive the disappearance of the Lao-owned transport and logistics industry and take advantage of world-class services being offered by regional players both on international routes and, later, within Lao PDR. But from a policy perspective, it is certainly more desirable to take advantage of the enormous potential and benefits on offer by upgrading the Lao transport and logistics industry. Benefits of a dynamic Lao-owned industry would be greater employment creation and produce more skilled and semi-skilled jobs in regional sectors. The increased capacity would not only benefit the Lao transport and logistics industry but also the wider economy.

Development of the Lao transport and logistics sector means not only greater participation of Lao vehicles in the import, export, and transit traffic, but also the introduction of value-added services such as door-to-door cold-chains for the handling of perishable agricultural products in the Lao export and Thai-Chinese transit trades. However, there is only way for Lao transport companies to take on this challenge: upgrade, innovate, and compete!

Proposed Measures

Upgrading of the transport and logistics industry involves not only investment in vehicles and operating facilities. But more importantly, investment in the human capital of the industry is needed to enhance the knowledge in depth and breadth across a wide range of people and areas as well as improving the technical and management capacity of the industry. The following key areas are, among others, particularly important:

- (i) Driver training;
- (ii) Vehicle mechanics and auto-electricians training; and
- (iii) Management training.

Strengthening the industry requires not only training of transport and logistics professionals, but also addressing wider constraints. This includes issues such as

- (i) Health and safety;
- (ii) Supply chains and value chains;
- (iii) ASEAN Economic Community; and
- (iv) Associations and representation.

Introduction and Background

Background of the Study

This study is prepared under the Gesellschaft für Internationale Zusammenarbeit (GIZ) “RELATED” (Regional Economic Integration of Lao PDR into ASEAN through Trade and Entrepreneurship Development) project. The objective of RELATED is to enable the Lao PDR to harness the potential of trade and reduce the economic risks of the ASEAN Economic Community (AEC). The program consists of two components:

RELATED intervenes at two levels. In activity area 1 (Trade and Investment Policy for ASEAN Integration), it will promote the improvement of the regulatory and administrative framework for intraregional trade in goods, services and trade-related investments. For this, the project will assist Laos in translating ASEAN agreements into national regulations and procedures. At this level, it will cooperate above all with government actors (ministries and subordinate authorities). Trade in goods will mainly be supported through a financial contribution to the Trade Development Facility II, a joint fund of various donors. Strengthening trade in services will focus on selected value chains with high relevance for the ASEAN regional economic integration process. Advisory services for promoting trade-related investments will concentrate on support for special economic zones and transforming transport corridors into economic corridors.

The transport and logistics sector might be among the selected services value chains to be supported. The establishment of the ASEAN Economic Community might have an important direct impact on transport and logistics in Lao PDR. It will lead to an increase in cross-border trade in goods and services. Since Lao PDR is surrounded by other ASEAN Member States, the country might become a logistics hub for the whole sub-region. Therefore, the AEC might lead to additional employment and increased income in this sector. At the same time, the development of the transport and logistics value chain might create important indirect effects for the Lao economy. It reduces transaction costs and therefore increases the competitiveness of Lao products in a regional comparison. However, the regional economic integration process also increases competitive pressure on the Lao transport and logistics sector.

In addition to this, RELATED will strengthen the private sector in taking advantage of the improved regulatory and administrative framework for more trade and investments. Therefore, activity area 2 (Preparing the private sector for the single market) aims at better preparing the private sector for the possible consequences of regional economic integration in ASEAN.

If transport and logistics will be among the selected value chains in activity area 1, the support to the sector will also include activities to prepare Lao transport and logistics companies better for the AEC.

Objectives of the Study

The establishment of the AEC may have important direct impacts on the transport and logistics sector in Lao PDR:

- (i) It may lead to an increase in cross-border trade in goods and services. Since Lao PDR is surrounded by other ASEAN member states, the country could become a logistics hub for the whole sub-region. Therefore, the AEC may lead to additional employment and increased income in this sector.
- (ii) At the same time, the development of the transport and logistics value chain may create indirect effects for the Lao economy through reducing transaction costs and therefore increasing the competitiveness of Lao products, especially in the Greater Mekong Sub-region (GMS).
- (iii) The regional economic integration process may also increase competitive pressure on the Lao transport and logistics sector, especially from neighboring countries like Thailand, Vietnam, and China.

This study aims to provide an overview of the transport and logistics sector in Lao PDR using a value-chain approach. In this study, the transport sector encompasses the transport of goods and the transport of passengers, both for different modes of transport. The objective of the study is to identify the potential benefits and challenges presented to Lao PDR's transport and logistics sector by the establishment of the AEC. This should enable GIZ to evaluate the suitability of the transport and logistics sector for inclusion in RELATED's component 2 (preparing the private sector for the single market). If transport and logistics is among the selected value chains, the support to the sector will include activities to raise competitiveness of Lao's transport and logistics companies as well as better prepare them for competing in the AEC, to be in effect in 2015.

The value chain approach identifies the contributions of the Lao transport and logistics sector to the different stages within the value chain as well as the stakeholders, including their role in the chain, involved at every step at different levels of government (national, provincial, local). Where possible, the study attempts to support the findings with quantifiable data. The ultimate objective of the report is to provide GIZ with recommendations as to whether the transport and logistics sector is suitable for GIZ's engagement under RELATED's component 2.

Definitions

There are numerous terms in the field of transport and logistics that are used interchangeably and lead to confusion even among experts. The following section provides some definitions of transport and logistics terms (as used in this paper):

Cargo Operations

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.



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.



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.

Vehicle Weights

Tare weight is the unladen weight of a vehicle. It is the weight of the piece of equipment without cargo. In the case of a container it is the weight of the empty container.

Gross Vehicle Weight (GVW) refers to the total maximum weight at which a vehicle is allowed to operate. This includes the vehicle (with fuel), any equipment, and the cargo.

Axle weight refers to the weight that is transmitted to the road by the axle of a vehicle.

Truck sizes and wheeling configuration

The size of trucks used and their axle configuration are important because it defines which regulation applies to them i.e. to determine how much cargo may carry.

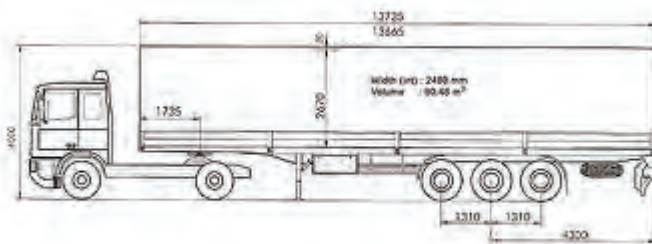
Semi Trailer compared with Draw –Bar Trailer combination



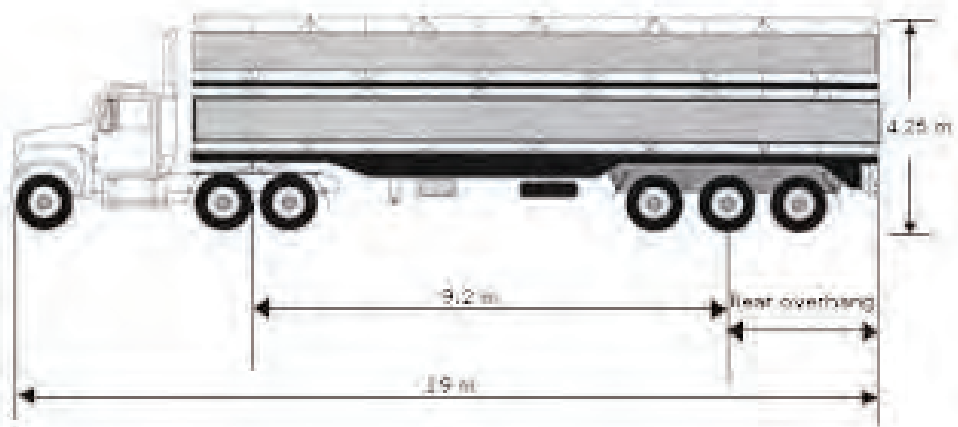
Multi axle, 12 wheeled rigid truck



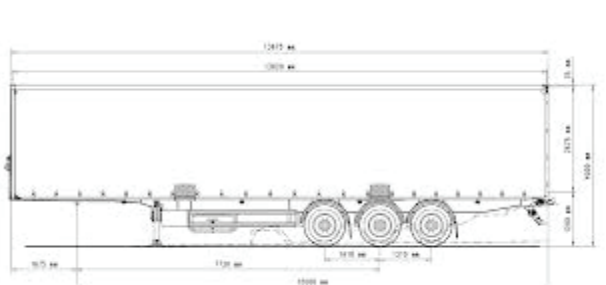
5 axle articulated semi trailer



6 axle articulated semi trailer



Tri-axle semi trailer (without tractor)



Value Chain vs. Supply Chain

A **value chain** is a sequence of related business activities (functions) from the provision of specific inputs for a particular product to primary production, transformation, marketing, and up to the final sale of the particular product to consumers (the functional view on a value chain). It describes also the set of enterprises (operators) performing these functions i.e. producers, processors, traders and distributors of a particular product. Enterprises are linked by a series of business transactions in which the product is passed on from primary producers to end consumers.

A **Supply chain / supply chain management** is similar to the value chain. The difference is that the supply chain refers to a sequence of (upstream) sourcing and (downstream) marketing functions of individual enterprises, mostly of lead companies. Therefore, supply chain management is a business management tool rather than a development concept. It is concerned with logistics rather than market development. It has evolved as a way of ensuring timely supply of raw materials and components to the manufacturing process and by reducing the cost and transit time of getting output to market.

The value chain in transport, in the widest sense, will always be a component of the value chain of other industries. To draw up a value chain for the transport industry itself, the concept needs to be adapted. For a multi-modal or multi-function transport procedure (e.g. international/trans-continental movements or complex logistics procedures) the process can indeed be broken down by function and operator. With domestic transport and distribution of imported consumer goods, most value-added occurs in terms of time-definite service and consolidation.

Value chains are created by demand. Most goods are moved in their most basic form and the main value-added is their delivery to market. Adding value to goods in transit is a concept that the transport and logistics service providers cannot do in isolation from the industries they serve. In many cases transport operators may be simply unaware of the opportunity or the potential demand.

Stakeholders

The transport and logistics industry covers all the functions in the movement and storage of goods. However, there are several distinctly separate stakeholders in the industry. Most concentrate in one or two subsectors and work with other service providers to cover the areas they do not provide themselves.

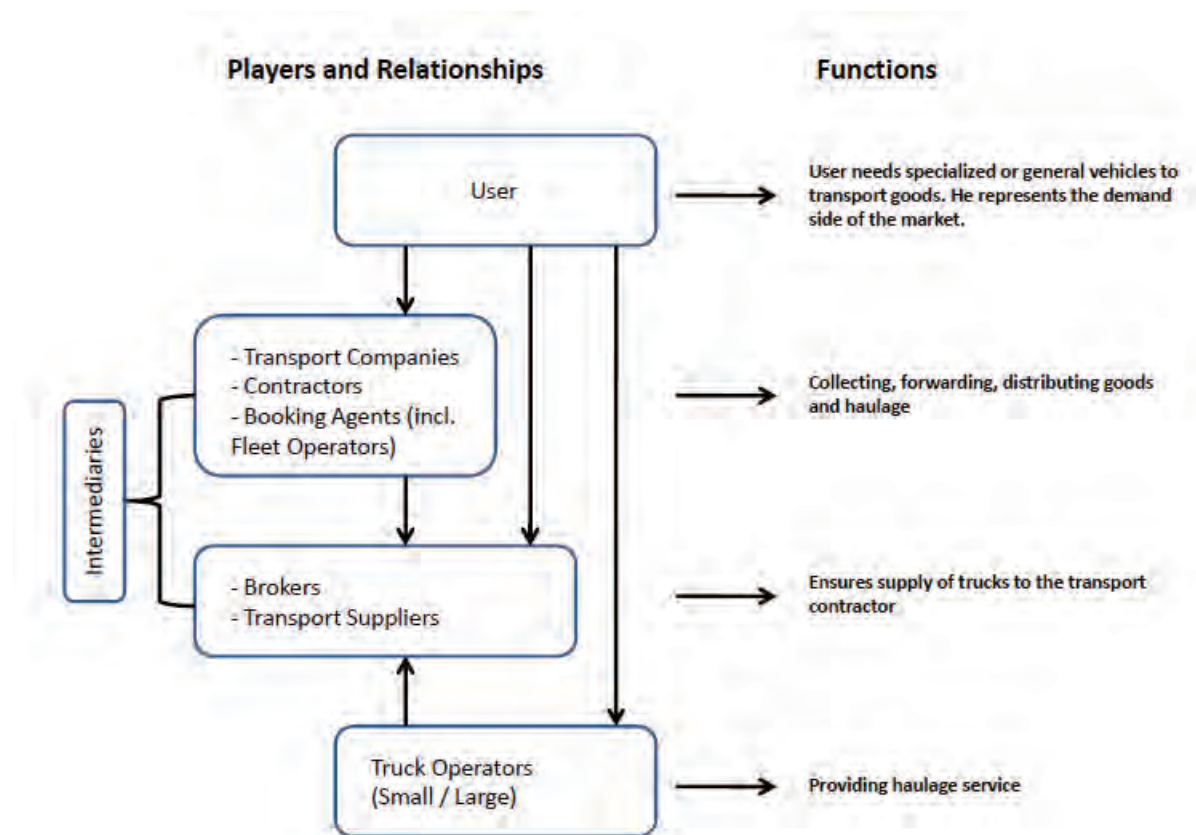
Freight Forwarders organize shipments for individuals or corporations to get goods from the manufacturer or producer to a market, customer or final point of distribution. Freight forwarders are often distinguished by the number of assets they hold such as transport equipment, loading equipment, etc. Their profit base are the margins from all transactions they make on behalf of their customers.

Transport Operators operate trucks, trailers and other vehicles. They may own them outright or lease them. They need to work these assets to pay for depreciation, fixed costs and running costs and then produce a profit. While freight forwarders benefit from complicated processes, transport operators are interested in reducing delays and make the process as smooth as possible.

Customs Brokers are individuals or firms licensed by Customs authorities to enter and clear imported goods through Customs on behalf of the importer. In Lao PDR Customs brokerage services are often provided by freight forwarders. However, there are still separate Customs brokers. Some provide also local on-forwarding or destination transport services. There are two categories of Customs brokers: (i) for import and export clearance only, and (ii) for transit clearance.¹

Other Logistics Service Providers cover all those added value services which turn transportation into logistics. The services provided generally relate to the storage and handling of cargo as an add-on to the transport function. In many countries the warehousing and order-picking function is dominant.

Figure 1: Stakeholders - Players, Relationships, Functions



SOURCE: Unknown

¹ Customs brokers always have to be approved by the national Customs authority and are usually required to have a bond or financial guarantee lodged with Customs in order to operate. Most countries also require the brokerage to employ qualified persons to complete Customs declarations and only these qualified persons are permitted to approach Customs or lodge a clearance request.

The Lao Transport and Logistics Sector

Transport of Goods

Contribution of transport and logistics to the economy

The transport and logistics sector benefits a country in two ways: (i) it is usually a major employer of semi-skilled staff and supports a significant sub-sector of skilled workers. The more developed transport and logistics sectors become, the higher the support-level required. This is particularly the case with modern trucks and buses which need specialist mechanics, auto electricians, and vehicle inspectors; (ii) the other benefit of well developed transport and logistics sector is to the industries which they serve. Countries with highly developed value chains demand high quality logistics in support.

Lao PDR has a workforce of approximately 2.5 million people. The Ministry of Labor and Social Welfare (MoLSW) reports an unemployment rate of 1.8% in 2010, up from 1.4% in 2005. The monthly minimum wage in the private sector is 800,000 LAK (80 EUR) for a 40 hour week. (Representative, Ministry of Labour and Social Welfare, Lao PDR, 2014)

Employment can be categorized by sectors as in Table 1.

Table 1: Employment by Sector 2010, 2012, 2015

	2010	2012	2015e
Agriculture	75.0%	71.0%	70.0%
Industry	5.5%	7.0%	7.0%
Services	19.5%	22.0%	23.0%

e: projection by the Ministry of Labor and Social Welfare

Source: MoLSW

Transport and logistics is part of the services sector. It is difficult to further predict employment in the transport and logistics sector because no data on sub-categories within the services sector is available. In addition, transport and logistics is also notorious for casual employment of local labor which is not captured in any statistics. For example, the sector creates jobs in the provinces on major regional transit/transport routes² although the role of Lao nationals in these areas is mostly limited to the Customs and physical handling operations of vehicles from other countries.

The contribution of the transport sector to GDP is a measure of the level of activity in the transport and logistics sectors. The percentage of GDP created by the sector tends to reduce as the economy matures and there is an increase in others services such as the financial sector. Where statistics are available they tend to level out at 4.5-5% of the economy. For example, the figure for the Australian economy has remained in the 4.5-5% range for the last 30 years. The EU also puts the contribution of the transport sector in the same range. However, the contribution of the transport sector to developing economies is

² The East West Economic Corridor (EWEC) from Savanaket - Davsavan in the South and the North South Economic Corridor (Boten – Louang Namtha - Houayxay) in the North.

generally higher. Thailand transport, for instance, contributed to GDP around 7.2% in 2010 down from 8.2% in 2006 (NESDB Thailand, 2011) (UNCTAD, 2010) (Solidance Consultants, 2014). Their total logistics costs as a percentage of the value of manufactured goods fell from 18% to 15% over the same period. However, those total logistics costs include a large element of warehousing and inventory carrying costs.

Lao PDR does not record the contribution of the transport sector as a percentage of GDP but Lao PDR's GDP consists of four main sources (see Table 2).

Table 2: Lao PDR GDP contribution by broad sector 2010, 2013

	2010	2013
Agriculture	28.9%	25.2%
Industry	26.9%	28.0%
Services	37.2%	38.9%
Taxes and Import Duties	7.0%	7.9%

Source: National Economic Research Institute, 2014

Transport and logistics contributes to the services sector but detailed data on its share are not available. However, the National Economic Research Institute (NERI) provides some further breakdown of other contributors (see Table 3).

Table 3: Breakdown of GDP contribution by Sector 2013

Sector	Contribution to GDP	Remarks
Tourism	6%	<i>US\$ 642 million / 3.8 million visitors</i>
Wholesale and retail trade	22%	
Telecommunications	4%	
Hospitality	4%	

Source: National Economic Research Institute, 2014

This would indicate a 4% contribution to GDP from the transport and logistics sector. This is well below that of other countries. For example, the World Bank estimates transport costs for developing countries at around 8% of GDP (Shepherd, 2011). Some of the deficit may be due to the casual nature of many of the logistics services. The sector is not formalized in many areas, cash payments are widespread, and there is a lack of tenure for most employees. While drivers and mechanics are in short supply and attract premium wages, the unskilled labor used in loading and transshipment is employed on a daily basis in accordance with demand. There is very little use of mechanical handling equipment due to the low cost of labor.

Functions of the Lao Transport and Logistics Sector

The Lao freight transport industry can be divided in four segments which, whilst connected, do not depend very much on each other:

Domestic Distribution

The distribution of locally produced and imported products is the only area where the Lao transport industry provides 100% of the trucking capacity. One of the largest distributors is Beer Lao which has an annual distribution of around 200,000 tons of beverages and makes approximately 15,000 deliveries annually. This contributes around 12 million EUR to the economy in terms of transportation expenditure. (Representative, Beer Lao, 2013) Beer Lao 2013). There is also a smaller network for Tiger.

Box 1: Profile of a Domestic Beer Producer

- 2 production facilities: Vientiane and Pakse
- More than 200,000 tons per year of domestic distribution or around 20 million cases of beverage by 15,000 deliveries
- One major transport company responsible for domestic distribution
- 50-60 vehicles involved in daily deliveries nationwide
- 400 plus people involved in the distribution operation including drivers and mates
- Introduced specialist beverage carries for Urban distribution in Vientiane spending 126 billion LAK (12.6 million EUR) on transportation services.

Source: Interviews.

Other major domestic distributors are importers of consumer goods. These come in by road to Vientiane, although there are also direct imports to Savanaket, Pakse and Luang Namtha. Goods are distributed through wholesalers who use domestic consolidation services for transport to the regional centers. This traffic is mostly from Vientiane with the most dominant route being to the North.

Food distribution is the reverse of consumer goods, with agricultural production heading into the major centers of Vientiane and Luang Phrabang from the provinces. The level to which consumer goods vehicles are used for return loading is limited. Agricultural producers and hence their logistics are usually not formally organized e.g. into wholesale groups. The lack of remote acceptance points and wholesalers generally means that agricultural production is delivered to markets by the producers using their own transport or smaller local hauliers. These vehicles then take consumer goods back to the provinces as subcontractors for the distributors.

However, transport operators from Vientiane report an imbalance of traffic that leads to empty returns of about 40%. Coffee and sugar from Pakse and a candy factory in Luang Prabang offers return loads to Vientiane and other major economic centers. However, the transport rates for those are only about half

the outbound rate. In the case of Beer Lao, trucks generally do not take alien return loads from the domestic market as they are used for the return logistics of empty bottles and crates back to the production facilities in Vientiane and Pakse.

In recent years, express delivery and delivery of overnight parcel parcels from Vientiane to the major cities in Lao PDR has developed as a separate market in domestic distribution. The main services are to Thanket, Savanaket and Pakse in the South. Developing but still limited are services to Luang Prabang and other centers in the North. The main operator is Land River Transport which is a State-Owned Enterprise (SOE). They operate approximately 50 rigid vehicles based at four regional depots and link them with nightly scheduled services from Vientiane. The volume of this service is estimated to be around 20 tons per day with each truck carrying shipments as many as 20 customers.

The vehicles of *Land River Transport* were a donation from the Japanese government and are second-hand (approximately five years old) from Sagawa in Japan. With donated vehicles, the profitability of the operation is not subject to the normal commercial constraints. *Land River Transport* plans to open branches in the North (in 2014) and already faces competition in some areas from new start-up businesses. This reflects a growing demand for time-sensitive deliveries of smaller shipments domestically in the Lao PDR.

Fuel Distribution

The rapid growth in vehicle registration is naturally leading to a rapid increase in demand for fuel and new fuel stations are being built across Lao PDR. One consequence of this is the development of the fuel transport industry which is growing rapidly. The industry was previously dominated by the state-owned *Lao State Fuel Company* with *Petro Vietnam* and *PTT* from Thailand being the other existing major distributors.

Lao State Fuel has approximately 300 10-wheeled, 3-axle rigid tankers. They are capable of carrying between 16,000 and 21,000 liters of fuel each. This fleet is supported by subcontractors who carry about 20% of *Lao State Fuel's* demand. At least one of the subcontractors was privatized.

PTT has announced that it will have 60 fuel stations in Lao PDR by 2017 as part of its ASEAN expansion plan. This would take it into second place ahead of *Petro Vietnam* which expanded its presence with the purchase of the *Royal Dutch Shell* service stations in 2012.

Evidence of the growth of fuel transport distribution can be seen in the import of 100 new Daewoo fuel tankers by *Petroleum Traders*, a Lao fuel distribution company. These fuel tankers are rigid 3-axle, 10-wheelers with a capacity of 16,000 liters each, although some are larger with 20,000 liter capacity.

Petroleum Traders intends to lease the vehicles to owner operators and small transport companies who will then be contracted as operators. This is a major development in domestic transport and it follows the model of leasing to small operators seen in many countries. It takes the employment and maintenance issues away from the company and allows them to get a known transport cost per liter without having to worry about labor and regulatory issues.

The question of safety standards is not clear. Operators interviewed report periodic training provided by the fuel companies, but there was no evidence of fuel safety signage, Hazchem/Hazmat safety instructions or phone numbers on the tankers. There are many older tankers bought second-hand from Thailand in various conditions. However, it is clear that the sector is growing and that there are now an estimated 500 plus fuel tankers on the roads of Lao PDR. This makes this a significant domestic transport sector.

Import/Export

The extent to which the Lao transport industry is involved in the import/export business depends on the routing and/or cargo.

- As Lao PDR is a land-locked country, sea-freight cargo and containers come via Laem Chabang port in Thailand and, to a much lesser extent, via Vietnamese ports. However, Lao trucks are unable to collect or deliver cargo at Laem Chabang thus all cargo to/from the port is handled by Thai trucking companies. This means that the Lao economy is dependent on the Thai trucking industry for transport of import and export cargo with all revenue and employment remaining in Thailand.
- Domestic delivery of import cargo can be handled by Lao transporters, but only after the cargo has been discharged into a warehouse in Vientiane and cleared of Customs. In most cases this applies to consumer goods that are distributed locally in smaller quantities around the country. If the volume is large enough for the truck to transport directly to the destination, it may go directly on the import vehicle.
- Exports from copper and gold mines are usually carried to Thai ports with Thai trucks. In the case of the XSepon Copper mine, the contract was recently 'won' by a Lao Forwarder. However, the 25 trucks being used now are the same Thai trucks and drivers who handled the cargo previously. Copper ore that is taken in bulk to ports in Vietnam, is carried on either on Vietnamese or Lao trucks. But insufficient Lao trucks satisfy the standards required by the mines because Lao operators are not willing or able to invest in the equipment needed.
- Imported consumables are all delivered to the mines, mostly from Thailand using Thai Trucks (though nowadays there are significant domestic deliveries to the site, notable Lao-produced sulphuric acid).
- Imports from China via Boten do often end up on Lao-registered and operated trucks. While the cargo is brought from China to the Mohan/Boten border along the NSEC on Chinese Trucks, it is transshipped onto Lao registered 10 and 12-wheeled rigid trucks after Customs clearance. Those same trucks carry usually Lao agricultural and timber exports to the same border for transshipment onto Chinese trucks.

- The transport of bulk minerals is probably the largest sector in the Lao transport industry. The number of trucks in the sector is estimated to be as many as 700 from less than ten operators with an annual turnover of approximately 60 million EUR (Department of Transport). Products transported mainly to Vietnam are gypsum, limestone, iron ore, potassium, lignite and other minerals. Most is carried from mines and quarries in Khammuen province and also from Vientiane province. Most cargo is destined for ports in central Vietnam, such as Vung Ang and Vung Au. There the minerals are stockpiled for export by sea or consumption by local plants.

There is also a large trade, mainly of limestone, to cement plants in Nakom Phanom in North Eastern Thailand. This traffic was dominated by Vietnamese trucking operators, but over the last eight years several large Lao operators have emerged and now handle the majority of the traffic.

Lao registered trucks have virtually unlimited access to Vietnamese production plants and ports in central Vietnam for very basic transport services using draw-bar rigid and trailer outfits which carry 35 to 40 tons per vehicle. The work is very hard on the equipment which is obliged to operate at its maximum capacity. Wear and tear on the trucks is heavy with the consequence that not many operators want to enter this business. However, operators involved report strong demand. For example, one operator who started in 2007 with 15 second-hand trucks, now has a fleet of 200 vehicles (mainly purchased new) and moves cargo in excess of 500,000 tons per year. The main constraint on expansion for such operators is their ability to find qualified drivers capable of operating heavy trucks as well as qualified mechanics to maintain those trucks.

- The export of timber from the southern provinces generates also large revenues. Although it is supposed to be mainly cut timber, there is a substantial traffic in uncut logs. The transport of the cut timber is generally handled by Vietnamese trucks, but the uncut trees and logs are carried on Lao registered vehicles. The Lao trucks involved are usually very old (often 30 years plus) and of poor standard. The safety level is low and loading limits on trucks are commonly ignored.
- Project cargo from countries other than China normally comes directly from Thailand to the site on Thai trucks. Cargo coming from China may also go direct to site or may be transshipped at a bonded warehouse in Mohan on the Chinese side of the Lao/Chinese border. Smaller, 12-wheeled Lao rigid trucks are generally used as these are better suited to roads in the mountainous north. The transshipment is often the only involvement that the Lao trucking industry has in the import of project cargo. The clearance will be handled by a forwarding agent who may also organize unloading on the site unless this is handled by the consignees themselves. However, the vast majority of project cargo is never carried by a Lao truck.

Transit Traffic

This sector has the lowest participation rate for Lao operators. Transit operations are dominated by Thailand, China, and Vietnam and there is no need to use a Lao registered truck on any of the three main transit routes, namely the East West Economic Corridor (EWEC), North South Economic Corridor (NSEC), and Route #12.

Thai trucks heading to Vietnam or South China normally run from their origin to Savanaket on the EWEC where their containers are transferred to Vietnamese trucks. The containers are then transported across Lao PDR by Vietnamese trucks to Vietnam continuing on the EWEC or on Route #12. Some of the Thai trucks drive through to the Davsavan/Lao Bao border where the cargo is transshipped onto Vietnamese trucks.

Thai trucks heading towards Yunnan can enter Lao PDR via the new bridge at Huayxay and continue along the upgraded R3A to Boten. There the loads are transshipped onto Chinese trucks. The Customs transit process is handled by Lao Customs brokers and freight forwarders who also arrange for the transshipment of containers by crane or manual transloading by local labor. To date, there is little or no involvement of the Lao logistics industry in the vehicular movement of transit traffic.

International developments

Lao PDR is developing international operations under bilateral and trilateral agreements with neighboring countries (mainly Cambodia, Myanmar, and Vietnam) as frustration with the lack of progress in negotiations with Thailand grows. The latest development is the signing of a trilateral arrangement to give Lao access to the Southern ports of Vietnam with transit through Cambodia. There have only been 70 permits issued to Lao, with 28 of those going to the *SMT-Nissin* joint venture. However, this is considered by many as a big step forward as this agreement gives Lao operators direct access to Ho Chi Minh port and long-distance container services. This is considered only the second-best solution as direct access to Laem Chabang would be preferred, according to the Ministry of Transport. Lao PDR does not, however expect to gain access to Laem Chabang in the near future. Nevertheless, this Lao-Cambodia-Vietnam agreement widens the transport options for Lao PDR.

Vietnam is allowing Lao vehicles to access Vietnamese ports without imposing quotas or permits. This has fueled the expansion of the trade of bulk minerals to Vietnam. But this trend can also be used to expand international transport operation rapidly once Lao operators develop capabilities to meet other customer requirements in the future. To date, the lack of articulated semi-trailers, qualified drivers, mechanics and management is preventing Lao PDR from making the most of this opportunity outside the movement of bulk minerals.

There is also a joint plan with Vietnam and Myanmar to develop the Route from Hanoi to Myanmar via Northern Lao PDR (Route 17). Myanmar is planning to connect their existing road from Tachilek to Keng Tung (Route 14) to a new bridge over the Mekong at Keng Lap/Ban Xiangkok on the road to Muang Sing in Louang Namtha province. Moreover, the three countries are working towards an exchange of traffic rights that ultimately would allow vehicles of all three countries to operate along the entire length of the route. This would open up an alternative route from Vietnam into Myanmar that completely bypasses Thailand and opens up another country for Lao Trucks. Traffic on the route will probably be very light in the early years (Representative, Department of Transport, Ministry of Public Works and Transport, Lao PDR, 2104).

Main Routes & Gateways

Lao import freight tends to come directly to Vientiane for clearance and delivery but transit freight passes through outlying provinces. The roles of the key provincial transport centers are as follows:

- Mukdahan - Savanaket is the main point for container swaps in Lao. Containers from Thailand arrive on Thai trucks and are transferred by crane to Vietnamese trucks in the Customs (or agents') compounds in Savanaket. This is done under Customs supervision with the seals checked and the documents changed to reflect the new vehicle number. Much of the cargo is in transit between China and Thailand. The Vietnamese trucks take over south-bound cargo from the Chinese border at Pingxiang, via Hanoi and enter Lao PDR via Route 9 at Lao Bao / Dansavan on the EWEC or via Nhon Cai on Route 12. The containers are swapped in Savanaket to Thai trucks and the Vietnamese trucks return with containers from Thailand to China or Vietnam.
- Dansavan - Lao Bao is the border between Lao PDR and Vietnam. It is rare for containers to be swapped here as there are no permanent crane facilities. The main trade is Thai consumer cargo being delivered into Vietnam by Thai trucks. They are allowed to enter the border area of Lao Bao which as a town is a Free Trade Zone. Most Thai trucks are unloaded manually by gangs of local laborers at the road side or into local warehouses. There is a limited import trade into Lao PDR, but as Vietnamese trucks can enter Lao there is very little transshipment on the Lao side. The Vietnamese trucks run through to Savanaket or to their destination in Lao PDR for unloading. It is very rare to see a Lao truck.
- Mohan - Boten is the Gateway from China on the NSEC. It is where Chinese trucks come to unload onto Lao domestic trucks. It is also where Thai trucks come to transship their cargo or containers over to Chinese trucks. Most of the cargo is manually transshipped by gangs of Chinese and Lao labor. There is not much container traffic on the bilateral China-Lao-China route but the Chinese-Thai transit traffic is, except for the tanker traffic in diesel and petrol, mostly containerized. Transshipment of the cargo from Chinese to Thai containers and vice-versa is mostly manual. A top-lift for transshipping containers is available in Boten but is rarely used. This is partly for cost reasons but also because there is no trust between the Chinese and the Thai operators and no generally accepted form of contract to regulate the handover and return of trucker-owned containers
- Nong Khai - Vientiane is the main route for cargo imported to Lao PDR. The cargo arrives on Thai trucks and most is unloaded into bonded warehouses on the Lao side of the bridge. Other cargo is cleared of Customs or bonded forward for unloading at the consignee's premises in Vietnam or the surrounding area. Containers which go direct to the consignee's premises on the Thai truck, unload and return empty to Thailand.

Transport of People

Contribution of transport and logistics to the economy

Lao PDR has no rail system and the domestic air service is too expensive for most Lao citizens. It is generally used by tourists and those on official business. Public transport for normal Lao people comes down to the domestic bus network for distance travel and Tuk-Tuks or motor bikes for local travel. There are also multi-user vans for sub-urban and district transport. Although these transport services may appear chaotic, overloaded and often substandard, they do function within regulations and are significant employers of people both formally and informally. The largest Tuk-Tuk association in Vientiane has 1467 vehicles registered to its members. Another 'taxi' association has 327 vehicles registered. In Luang Prabang two separate associations have 266 and 643 local taxis or Tuk-Tuk registered. These figures indicate that the informal local public transport sector is larger and employs more people than the formal and regulated public bus sector (Representative, Department of Transport, Ministry of Public Works and Transport, Lao PDR, 2014).

Functions of the Lao Passenger Transport

The majority of people within Lao PDR and neighboring countries rely on an extensive, well-developed bus and coach transport system for their domestic and international mobility. Long-distance buses are operated between Vientiane and all major centers in Lao PDR and the GMS region. Besides passenger transport of Lao people and tourists, they carry also significant volumes of domestic freight. At the end of 2012 there were 3,352 buses registered in the Lao PDR. This figure has been growing at an annual rate of about 10% since 2006 (Department of Transport, 2014).

Domestic Buses

The long-distance domestic bus network is the backbone of domestic passenger transport in Lao PDR. All cities and towns are linked by scheduled services. Many buses are owned by individuals or small operators. Those operators then form cooperatives which apply for the licenses jointly. Services are licensed by the Department of Transport on the basis of demand and applications made. 131 of these are registered for the 35 Vietnam routes. Although the distances to Vietnam and turnaround times are longer than those to Thailand, the registration of so many buses for this sector appears high when compared to Thailand (Representative, Department of Transport, Ministry of Public Works and Transport, Lao PDR, 2014). Services to remote areas, or services additional to regular demand, are often supported by local government. However, the extent of the subsidies is not publicized.

Buses provide transport for both for locals and tourists, mainly backpackers and other cost-sensitive travelers. As air transport within Lao PDR is relatively expensive and often subject to delays, the bus network provides a viable alternative and connects major regional centers. The domestic long-distance bus network is well developed and well organized. There are two bus terminals in Vientiane. One serves the North with 30% of the traffic with the other 70% departing from the terminus service the South. Bus travel to the South is more popular due to the easier road conditions.

Non-urban bus services can be categorized as follows:

- Vans with 12 to 15 seats: These service towns up to 100 km from Vientiane. There are up to 100 services per day from each of the bus terminals in Vientiane.
- Regular long-distance buses: These are non air-conditioned 45 seat coaches that are at least 20 years old, normally second-hand from Korea. These vehicles are becoming less popular and are being phased out as they become unserviceable and newer ones become available (Representative, North Long Distance Passenger Company, 2014).
- VIP2 services: These are air-conditioned 45 seat vehicles and are the most popular service as they are only an average of 20,000 LAK (2 EUR) more expensive than the regular buses and are newer. The vehicles are predominantly Korean purchased either new or second-hand
- VIP1 services. These are air-conditioned with reclining seats or even fully reclined sleeper seats. They offer videos and some on-board service. The longer distance ones also include toilets.

There are 14 routes to the North and 13 to the South. Each route is operated by 2 bus companies. One from Vientiane and one from the provincial center. The fare is the same on both carriers and only differs according to type of service (regular/VIP1/VIP2). Some busy routes may offer all three levels of service, but all routes offer the VIP2 service. Operators report a growing demand for VIP1 services.

Utilization figures obviously depend on the route and there is considerable seasonal variation. However, load factors of 70% are claimed to be average. Combined passenger numbers for the two Vientiane terminals is put at 2,800 people per day in low season up and 7,000 a day and more at holiday times. In general a figure of 3,500 persons per day using the long-distance bus service appears solid. This is without the van services operating up to 100 km which are estimated to carry 2,500 people per day. The figure for van services operating out of regional cities such as Savanaket, Luang Purbang and Pakse is not known as the number of services is not known. However, it is estimated that at least another 1,000 persons use the van services within a 100 km radius of other provincial centers (Representative, North Long Distance Passenger Company, 2014).

Total figures are put at 3,500 persons per day from long-distance buses. Allowing for holiday peaks, the long-distance passenger figure is estimated at 1.4 million passenger movements per year. With an estimated average fare of 120,000 LAK (12 EUR), this gives annual passenger revenue of 168 billion LAK (16,8 million EUR). The figure for the 100 km van passengers would be at least 1.3 million passengers. With an average fare of 30,000 LAK (3 EUR), this would give annual revenue of 42 billion LAK (4.2 million EUR).

Each long-distance bus travelling over 400 km has two drivers and two service staff. Drivers are paid at least 2.5 million LAK (250 EUR) per month and secondary drivers 1.5 million (150 EUR). Finding and retaining good drivers is an often-cited problem, with companies having to pay bonuses to experienced drivers to retain them. With around 100 services per day, this is 400 on board staff, plus around 100 working at the terminal.

Getting mechanics is also a major problem. The largest operator heading north from Vientiane has 50 buses. But only 30 operate at any one time. The others are either in the workshop or are held in reserve to cover breakdowns. They have 12 senior mechanics, but at least 7 of them are brought in from Thailand as contractors due to the lack of local mechanics. The full mechanics are paid 3.5-4 million LAK (350-400 EUR). The company also takes on young apprentices to train their own mechanics due to the shortage.

Bus Cargo

Domestic bus services carry small shipments for individuals and companies. They also provide the intra-country network for the Lao post office. There is a postal office in each of the bus terminals and the bus service provides the town to town connection. Domestic customers use the bus service for urgent parcels and cargo, especially to the north, as the bus schedule is faster than the consolidation services with several departures each day to each regional center. The cost of using the bus service is much higher than the domestic freight services. The bus operators charge by kilo in line with the post office, but they charge higher rates for higher value cargos. There are no figures for the actual amount of cargo carried by bus, but, it is safe to say that each bus would have up to 1 ton on it and there are 100 bus departures per day (Representative, North Long Distance Passenger Company, 2014).

International Bus Services

There is a well-established and successful international intercity bus network linking Lao PDR with 13 destinations in Thailand, 15 in China, 3 in Cambodia, and 36 in Vietnam. A total of 196 Lao buses are registered to operate on international routes (Representative, Department of Transport, Ministry of Public Works and Transport, Lao PDR, 2014)

The international bus system serves as a good example where bilateral agreements are not only signed and ratified, but are also in operation. Generally, to open a new route there is no public tender and only those applying to provide the service are considered.³ Each route is normally operated on a duopoly basis, meaning an equal number of services are offered from each of the two cities by the licensed operators. For example, on each route (i.e. Vientiane-Bangkok), awarded operators must have a matching number of services, charge the same fare in their local currency (248,000 LAK/24.80 EUR or 1,000 Baht), and each company is free to sell tickets in the other city for the return journey. Lao operators have been able to compete in this international long-distance bus service, partly because one partner on a specific route must be a Lao company. While the buses are provided from the operator(s) in each country, there are cases where the Lao operator is purely a figurehead and both buses are serviced by the foreign operator. In this case, drivers and staff are provided by the foreign partner with little benefit accruing to the Lao economy.

³ Application process: an application must be made to the Department of Transport for each route. The application is generally made in conjunction with an operator from the other city that is to be served. There is then an assessment made as to the potential traffic levels, the proposed fares and potential for the route. This is done in conjunction with officials from the other country (Representative, Department of Transport, Ministry of Public Works and Transport, Lao PDR, 2014).

While the services to Bangkok, Hanoi and Kunming are successful, they are not the most popular routes. With rising distance and journey time, bus services increasingly compete with air transport. The services in most demand are those linking Lao PDR with the regional cities in Thailand and Vietnam. The service to Udon Thani is particularly successful as it allows for a cheap road–air combination to Bangkok compared to the direct, international air service.

Stakeholder Overview

Transport operators

Officially there are 67 transport companies registered in Lao PDR. There are a further 36 companies registered under joint ownership between Lao and foreign shareholders and 37 foreign-owned transportation companies. In addition there are 378 sole proprietors. The representation of the industry is however dominated by the 17 core members of the Lao International Freight Forwarders Association (LIFFA).

BOX 2: Number of weekly Bus services between Lao PDR and neighboring countries in 2013

- Thailand: 42 with approximately 250,000 passengers
- China: 25 with the longest service of Vientiane to Kunming.
- Cambodia: 7 Including Phnom Penh and Siem Reap
- Vietnam: 35 Including 4 services per day to Hanoi.

Source: Department of Transport Statistics

As of 2013 there were 33,460 goods vehicles and 3,532 passenger vehicles registered in Lao PDR. The majority of goods vehicles (16,918) were registered in Vientiane, followed by 3,193 goods vehicles registered in Savanaket. The rate of increase of registrations over the previous year was 16.7% after increases of 12.65% and 10.5% in 2011 and 2012 respectively. The Lao goods vehicle fleet has increase from a base of 13,085 in 2002, an increase of 155% in ten years. For public passenger vehicles, the increase was much more modest with only 73% and a steady rate of around 10% per annum over the past few years (Department of Transport, 2014).

In most countries small and medium-sized enterprises (SMEs) are the backbone of the asset-based road transport industry.⁴ In Lao PDR, the small transport companies are almost invisible; it is very difficult to locate them. Connections to international firms are very rare and they usually obtain international cargo only through sub-contracted work from major forwarders. For domestic cargo, the lack of organization of local operators is equally evident. While there are a significant number of domestic companies with up to 20 vehicles, they are supported by operators with one or two trucks. There are only a handful of companies of this size in Vientiane with other similar ones in other major centers. They seem to concentrate in the North (i.e. Luang Prabang, Luang Namtha, Boten, and MuangXai) or South (i.e. Savanaket and Pakse) of the country with no evidence of any domestic operator covering the whole country.

BOX 3: Profile of a typical Medium-Sized Domestic Transport Operator

- Vehicles: 20 x 12-wheeled rigid trucks, mostly 2nd hand from Japan, converted to left hand drive in Lao PDR. Average age 12 years. Imported when 6 years old and purchased in Lao PDR.
- Drivers: 20 drivers with an assistant on each truck. Monthly pay 3.5 million LAK (EUR 350) for the driver and about EUR 150 for the assistant.
- Loading staff: 12 at 1.2 million LAK (EUR 120)
- Office staff: 4, usually family members of the owner.
- Maintenance & Breakdown: performed by driver and assistant. Major repairs outsourced to garages in Vientiane or where breakdown occurs.
- Facilities: small roadside warehouse (100 m²) used for receiving and loading cargo in Vientiane. Company collects cargo or shipper delivers by van for manual loading and consolidation.
- Office: desk in warehouse and small office in house front next door.
- Estimated annual turnover 9,6 billion LAK (960,000 EUR)
- Total staff 50 with estimated annual wages bill of 136,000 EUR

Source: Interviews

⁴ Large multi-national freight forwarders ("3PL") usually do not hold assets and instead rely on small asset-based transport companies to provide vehicles. For example, in most Western economies a large part of the small asset-based transport companies are actually owner-operators. In Japan which is dominated by major transport and logistics companies, there are some 50,000 trucking companies. However, 22,500 (45%) have less than 10 vehicles. In Europe, market shares of the owner-operator sector or companies with less than 10 trucks are often even higher.

Transport operators normally specialize in servicing certain cities and charge on a kilo or cubic meter rate for mixed cargo, or on a full load basis. Their primary work is outbound from Vientiane and their return work is ad-hoc. On the routes North out of Vientiane as many as 40% of the vehicles return empty. Others go to the Chinese border to collect transshipment import loads or wait up to 3 days at a truck park in Muang Xai for return loads.

BOX 4: Profile of a typical Large Mineral Export Transport Operator

- Vehicles: 38 x 12-wheeled rigid trucks with draw-bar trailer and total 22 wheels. Most are 2nd hand from Japan, converted to left-hand drive by the transport company. Average age 12 years. Imported when 6 years old and purchased in Lao PDR.
- 10 tractor-trailer outfits. Chinese brands purchased new
- Drivers: 50 drivers. Monthly pay 5.75 million LAK (575 EUR)
- Maintenance: 20 Senior Mechanics @ 4 million LAK (400 EUR) 15 Junior @ 2 million LAK (200 EUR)
- Office staff: 15, average 2 million LAK (200 EUR)
- Facilities: Transport yard with parking and maintenance facility for 6 trucks
- Office: Operations and accounts in building on same site
- Annual turnover 33 billion LAK (3.3 million EUR)
- Total staff 100 with estimated annual wages bill of 470,000 EUR

Source: Interviews.

Medium-sized transport companies are also supported by owner-drivers who are often counted as part of their own fleet. The company will have direct customers in its own home market and use agents or freight clearing houses for return loads. The revenue for return loads is generally 50-60% of the primary load.

The carriage of minerals for export (there are also some domestic movements) has been the major growth area for the Lao transport industry. The company profiled above has 50 vehicles and a turnover of 3 million EUR. However, larger operators were also interviewed with as many as 200 trucks, 450 staff, and a turnover in the region of 20 million EUR. The management of these companies reported that the lack of trained and qualified drivers and vehicle mechanics was their major constraint for expansion.

There are two large operators with fleets of up to 200 vehicles and as many as six medium-sized operators with fleets up to 50 vehicles. If the activity levels are similar to those interviewed, it would mean a sector with a turnover of approximately 60 million EUR, employing as many as 1,500 people. Of these employees, around 1,000 would be drivers with monthly salaries averaging 4.5 million LAK (450 EUR). These salaries are well above the 3 million LAK (300 EUR) salaries for senior drivers seen in the other sectors.

Freight Forwarders

The Lao freight forwarders are well organized by local standards. Most are member of LIFFA which is set up under the Department of Transport, given representation on Government bodies and officially recognized as representing the industry. LIFFA sits on the National Transport Facilitation Committee (NTFC) and the board of the Road Maintenance Fund (RMF). Members are able to enter into contracts with Lao Customs and offer transit guarantees for vehicle and cargo in transit through Lao PDR. In turn the Department of Transport provides the back-up guarantee to Customs in the event of a default by one of the LIFFA members. This has never been needed to date.

The members of LIFFA are the strongest and most influential members of the transport sector in Lao PDR. However, these companies operate with minimal transport assets and generally subcontract trucking work to transport operators owning vehicles.⁵ The members of LIFFA usually have the interface to the cargo owners/customers, including international customers. The Lao freight forwarders compete against each other for international business, concentrating on areas of operation such as:

- Inbound clearance of containerized cargo;
- Imports, clearance and handling of general and regional cargo;
- Onsite project cargo clearance, unloading and handling;
- Providing cranes and equipment for project cargo;
- Export air and sea freight; and
- Transit Customs clearance for trucks on the EWEC or NSEC for foreign trucks.

Customer Brokers

Most Customs brokerage licenses in Lao PDR are held by the larger Lao freight forwarders. They provide a Customs clearance service as part of their overall service. There are several stand-alone brokers who concentrate on Customs clearance and do not provide freight forwarding services. Most of these brokers operate in one of three areas :

- Boten: often coupled with another office at Houayxay. They handle transit clearance for the NSEC for traffic between Thailand and China, import clearance, and duty and tax payments at Boten for imports from China. The brokers arrange domestic transport to Vientiane or other centers once the cargo is released by Customs.
- Vientiane/Thanaleng: this is the main point of entry for import cargo from Thailand via the bridge from Nong Khai. Forwarders based in Vientiane can also clear cargo arriving by air. Even the

⁵ The exception is Societe Mixte de Transport, the largest forwarder. They have established a joint venture with Nissin Transport from Vietnam and operate 28 trucks based in Savanaket. They are the only Lao-based forwarder that maintains a major transport fleet.

Customs brokers from the North and South have offices in Vientiane as they often need to contact Customs Head Office in the capital in connection with transit or other pre-clearances.

- Savanaket: there are only two stand-alone brokers in Savanaket for clearance of transit cargo using the EWEC. The other Customs brokers in Savanaket are also freight forwarders. There are a handful in total and they also handle transit clearances via the new bridge at Thakhek. The brokers in Savanaket handle direct import clearances for Pakse by sending staff down to Pakse when needed.

When cargo arrives at a Lao border point with Vietnam or Cambodia, no actual clearance process takes place at the border. The broker in Vientiane or Savanaket arranges pre-clearance with an inland Customs office and then sends the scanned documents over to their representative at the border point of entry for the truck to be released. The actual Customs clearance takes place when the vehicle arrives in Vientiane or Savanaket. For remote borders, the documents are taken by hand.

These Customs brokers have no transport assets and operate no vehicles. All of their income is based on Customs clearance charges, transit guarantee charges, or margins on subcontracting transport. The rates charged for Customs clearance are very high by international standards. They are likely to be particularly vulnerable to competition from ASEAN countries once the AEC comes into effect. The Lao representative offices of the major international forwarders, logistics, express, transport and Customs clearance agents are not licensed to perform Customs clearance. They are all required to use a local broker who is often their partner for domestic distribution. With the full implementation of the AEC, these companies will be able to deal directly with Lao Customs and set up their own brokerage operations.

Lao PDR' dependence on neighboring countries for trade

Lao PDRs transport and logistics industry is under-developed in part due to the small size of the domestic market, the wide dispersion of the population throughout the country, the lack of a large and clustered manufacturing and trading base, and the availability of, and the country's subsequent dependence on, more sophisticated services offered from the surrounding countries, especially Thailand⁶. The country's natural dependence on trade with Thailand (55% of Lao PDR' international merchandise trade), China (29,5%), and Vietnam (9,3%) (International Trade Center, 2013) makes Thai and Vietnamese gateways critical for the Lao economy. Small portions of trade are handled through Myanmar as well as Vientiane's international airport.

Thailand is generally the preferred transit country for 3rd country merchandise since the ports of Bangkok and Laem Chabang are closer to Vientiane than ports in Vietnam (Da Nang or Hanoi) Furthermore Thai gateways offer a wider range of destinations, more frequent services, and lower freight rates. Moreover, the Thai commercial infrastructure is better developed than in Vietnam and the people are linguistically and culturally closer. However, Lao truck operators are restricted in the routes they can service within Thailand and above all are limited in their ability to compete with Thai truckers.

⁶ "Thai companies" in this context refers to companies established in and operating out of Thailand. In practice many of these companies are international 3PL operators controlled in third-countries.

The Thai trucking fleet is around 20 times the size of the Lao fleet (770,000 vs. 33,460), more modern, and operates on lower costs due to larger average truck size, higher fuel efficiency and economies of scale. Lao trucks, on the other hand, are often too small (leading to high unit costs), technically sub-standard (vulnerable to frequent breakdowns and requiring informal payments to pass checkpoints), and cannot pick up domestic return loads within Thailand (as Thai trucks can).

Furthermore, there are commercial reasons for the dominance of the Thai trucking industry. Thai shipping lines, airline-agents, Customs brokers, and other logistics service providers are automatically involved in facilitating the entry and exit of goods into and out of Thailand. As most Lao exports are sold ex works Lao PDR, or FOB⁷ with a Thai port nominated, the shipping line, airline and 3PL (Third Party Logistics service provider) is chosen by the purchaser. Most of these service providers maintain a presence in Thailand, and control the international leg of the cargo journey through their associate in that country. The Thai-based 3PL provide world-class ICT and traceability, lower freight rates, financing of transport costs, and liability-bridging insurance.⁸

Imports to Lao PDR via Thailand hand generally arrive on the basis of Cost and Freight (CFR)⁹ Thai port/airport, or even CFR Lao PDR. Similarly to exports, there is usually no Lao company involved until the cargo arrives at the Lao border.

In a variant on the above trades there is also a significant market for Thai trading or manufacturing companies. With their international connections and strong financial base, they act as commercial intermediaries buying raw materials, semi-finished or even finished products from the Lao PDR and selling them on, sometimes with value-added services, to customers in third countries. This trade also employs few, if any Lao PDR resources and generates little, if any revenue for the Lao PDR once the cargo has passed the national border.

The cross-border trade with Thailand in 2012 was around 172.6 billion THB (4.315 billion EUR). This represents 14% of Thailand's cross-border trade (NESDB Thailand, 2011). Of this trade, 56% of exports leave Thailand via the border at Nong Khai while 73% of imports come in via the Savanaket/Mukdahan border. In 2012, Thailand had an 86,102 million THB (1.95 billion EUR) trade surplus with Lao PDR. Thai exports to Lao PDR have been year-on-year by as much as 30% in some recent years.¹⁰ Lao export to Thailand is hardly increasing.

⁷ "Free on Board" means that the seller fulfils his obligation to deliver when the goods have passed over the ship's rail at the named port of shipment. This means that the buyer has to bear all costs and risks of loss of or damage to the goods from that point (World Class Shipping, 2014).

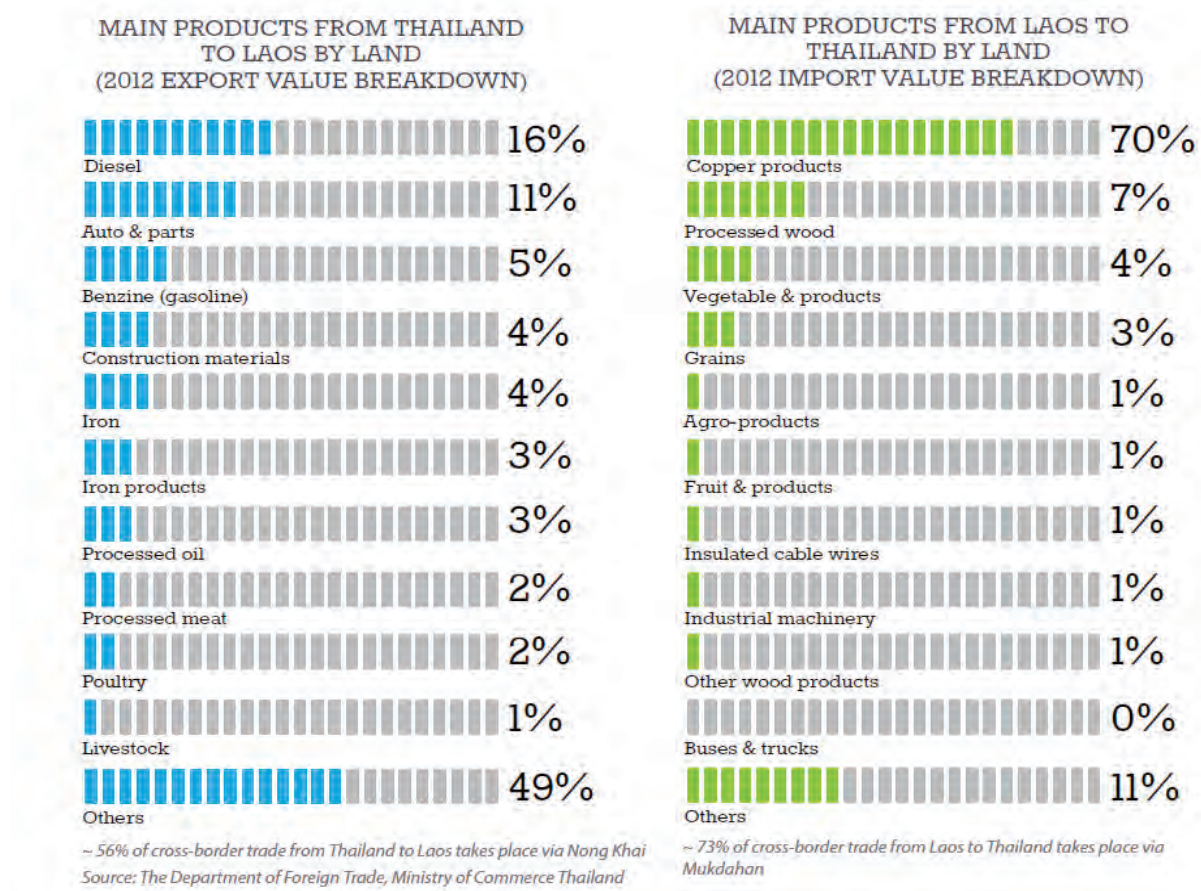
⁸ The associate company could in principle also operate within Lao PDR but in practice this is usually not the case, partly because a Lao presence is not necessary, partly because the activity of non-Lao 3PL in Lao PDR is not encouraged.

⁹ "Cost and Freight" means that the seller must pay the costs and freight necessary to bring the goods to the named port of destination but the risk of loss of or damage to the goods, as well as any additional costs due to events occurring after the time the goods have been delivered on board the vessel is transferred from the seller to the buyer when the goods pass the ship's rail in the port of shipment (World Class Shipping, 2014).

¹⁰ TH to LA 2011 US\$ 4.243 bn, 2012 US\$ 5,806 bn, 2013 US\$ 6,192 bn

LA to TH 2011 US\$ 3.016bn, 2012 US\$ 3.210 bn, 2013 US\$ 3.111 bn

Figure 2: Trade between Lao PDR and Thailand by Product, 2012



NESDB Thailand, 2011

Analysis of the Transport and Logistics Value Chain in Lao PDR

Logistics is a component of value chain management. Goods, people and information move within the value chain from supplier to manufacturer or from manufacturer to end user. The management of this movement is the role of logistics. Well-managed logistics systems save cost and time leading to increased competitiveness for the organization or the product.

In general, logistics could include the following activities: (1) customer service & support, (2) demand forecasting & planning, (3) sourcing, (4) inventory management, (5) logistics communication & order processing, (6) material handling & packaging, (7) transportation, (8) reverse logistics and (9) facilities site selection, warehousing, and storage (Grant, Lambert, Stock, & Ellram, 2006).

Economic Analysis

Logistics adds value to processes by placing goods and services where they are needed to help the process meeting customer needs. Logistics is a derived demand of trade. Logistics is an important driver in sustaining a country's or a region's competitive advantage. In many countries there is a lack of understanding of the concept of logistics and how a national logistics development policy can be developed and logistics development policy is nothing more than a transport infrastructure plan. In the context of Lao PDR value chains are presently not sophisticated. Value chain logistics fall into several categories:

Raw Materials and Minerals

This includes aggregates, ores, minerals, timber and some bulk agricultural products transported in their basic form for processing elsewhere. This is transport in its most simple form. However, it has facilitated significant growth in the export of raw materials and is the sector in which Lao transporters have achieved the most success. There is growing domestic demand for inputs into cement and construction.

Domestic Distribution

Most consumer products are imported from Thailand by road and distributed from Vientiane by domestic transport carriers. There are far less domestically produced consumer goods for distribution, with the notable exception of Beer Lao who operate their own dedicated network. Due to the nature of the import and distribution business and the low population density, most domestic cargo is carried on a consolidated (common user) basis. The transport service providers consolidate cargo from many different shippers at their depot for loading into one truck for delivery to various consignees through regional centers. This is a significant value-added service as it brings economies of scale to domestic distribution. Cargo is charged on a per kilo or per cubic meter basis. Where consolidation services are not available, small customers can only ship infrequently and in larger quantities thus reducing their competitiveness.

Small shipments of domestic freight have long been carried on the roof of the long-distance domestic buses. This has provided a low-cost and surprisingly effective point to point transport service to provincial centers. The emergence of *Land River Transport* as a time-definite parcel and small LCL (less than container load) carrier shows that the sector is growing and that there is demand. There is even competition for *Land River Transport* on certain routes, especially towards the Northwest of the country. The ability to deliver small shipments on a time-sensitive basis and to have a two-way service with provincial centers is a significant value-add in transportation terms. It makes the delivery of spare parts possible for high tech products such as mobile phone towers and computer servers. It allows for the return of high value parts for repair and return possible (known as RMA). This allows technology service companies to reduce forward inventory stock holdings of spare parts and to respond to service calls in a timely manner.

This sort of express/time definite delivery model is a big step for Logistics in Lao PDR. The recognition of time-sensitive demand and the willingness to pay for it is perhaps the most significant value chain initiative seen in Lao PDR thus far.

Import / Export of General cargo

This market is dominated by Thai transport companies. The standard of services offered and the value-added is of international standard but the Lao contribution to this value chain is minimal. A substitution of Lao for Thai service providers may, if the services are of equivalent value, bring advantages for Lao PDR insofar as employment creation is concerned. More direct advantages for Lao PDR could be achieved through changes in operational practice such as the establishment of a rail-linked Inland Container Depot (ICD) near Vientiane. This could bring Lao service providers into the value chain and at the same time reduce the cost of re-positioning maritime containers.

Establishing an ICD or container park has long been a proposal from the Lao Logistics industry as it would give them far more involvement in their import/export trade. With a container park in Vientiane, it will be easier for Lao service providers to initiate the export movement themselves rather than having to bring in empty containers from Bangkok. It would make Lao transport more competitive as it would reduce the advantage that Thai operators currently have as a result being able to reload domestically within Thailand.

Transit Cargo

Lao operators do not play an active transport role in the transportation value chain for transit cargo. Lao Customs brokers and forwarders handle the transit Customs clearance, container swapping and where required, manual transshipment. However they are not active in the trucking of the cargo. The only exception to this is the Lao – Vietnamese /Japanese joint venture of SMT-Nissin based in Savanaket who have a fleet of vehicles active on the Hanoi - Bangkok route via the EWEC.

The process of Customs clearance, container swapping or cargo handling does technically add value from a supply chain perspective. However, it is also adding costs that can be seen as unnecessary and unsustainable in the longer term. The Cross-Border Transport Agreement (CBTA) and the Tri-Lateral agreements will allow vehicles to transit Lao PDR without transshipment and the advent of the AEC and the ACTS (ASEAN Customs Transit System) will allow new players to enter the Customs transit market, inevitably reducing transit clearance fees and margins.

The transit business will continue to grow, especially as China manufacturing moves west. This will make the route through Lao PDR on the NSEC the main route to link the component plants of Thailand with the manufacturing plants of central and Southwestern China. Lao transport companies have the opportunity to be significant players in this trade, but they will have to do more than transit clearance and container swapping to see value-chain benefits accrue to Lao PDR.

Perishables

Lao PDR is involved in the movement of perishable cargo as part of international transit movements, the export of Lao produce and also the import and distribution of perishable products. To participate actively in perishable traffics the Lao transport industry will need to be able to maintain the cold chain door to door. Maintenance of the cold chain brings great benefits through the reduction of waste but this is the most technically challenging value-chain for transporters and the Lao PDR has no facilities for maintaining the cold chain.

There are no third-party providers of refrigerated transport capacity nor of temperature-controlled warehousing. On transit traffics the transshipment procedure does not safeguard the cold chain, there are no temperature controlled warehouses at the borders for handling of perishable import cargo and no temperature-controlled reception, packing and remote acceptance centers for potential exports of Lao fresh products.

The present Lao involvement on import traffics is thus limited to company-internal movements on the part of restaurateurs and food importers, using company-owned facilities. On transit movements of fruit and vegetables between Thailand and China on the NSEC the Lao involvement is only as Customs brokers handling transit clearances for the Thai and Chinese trucks or as transshipment agents providing a manual transshipment service which does not meet international cold chain standards at all. There is potential for the Lao transport industry to participate in the door to door transport along this corridor but investment in suitable vehicles and facilities will be necessary.

The greatest potential for value-added for implementation of a functioning cold-chain in Lao PDR is in the preparation of exports of Lao fresh horticultural products. At present some small trade takes place, largely informal, across the Mekong to Thailand without phyto-sanitary certification.

Plans have been discussed for some time to open remote acceptance centers in Lao PDR backed up by purchase agreements with foreign (mostly Thai) purchasers. These centers, equipped with temperature control, sorting, packing, payment facilities and phyto-sanitary certification can accept deliveries in from small-scale horticultural producers and link to scheduled temperature controlled transport to stores or distribution centers of modern retail chains in Thailand.

Waste is a big problem in the transport of perishable produce. It is a significant problem in the trade between Vietnam and China where as much as 40% of produce is rejected or downgraded. At Muse on the Myanmar border with China, remote acceptance facilities have been established for the produce of Myanmar to be inspected and accepted before transport to China. This has greatly reduced wastage.

There is a substantial but unofficial export of bananas and other seasonal fruit on Chinese trucks via small local borders from the Northern Lao provinces. This trade is reported to fill as many as 100 trucks a day. There is no value added on the Lao side and there is no involvement of the Lao transport or logistics industry in the export of the produce.

Organic Vegetable Exports

There is a small but successful business exporting organic vegetables from Lao PDR to Europe. The produce is grown in Vientiane Province by selected producers. Small growers are managed to produce varieties of basil, round eggplant, peppermint, chili and others. These are then harvested and brought into Vientiane for cleaning and packaging. The product is then flown to Bangkok by air and onwards to Frankfurt, Copenhagen and Switzerland (Representative, Lao Green Vegetables, 2014). The current export level is one to two tons per week. However, the exporters report higher demand that they are not able to meet due to transport issues. The transport from field to processing plant within Vientiane must

be done within 3-4 hours maximum as there is no cold chain, no temperature-controlled collection vehicle and no temperature-controlled consolidation center. The airfreight capacity out of Vientiane to Bangkok is limited by the capacity of the single-aisle passenger planes (max 2 tons per flight). There is no cold chain by road to Bangkok unless a large dedicated refrigerated truck is hired.

If a refrigerated cold chain were available in Lao PDR, not just for the long-distance transport but also for the local collection and consolidation center the harvest area could be extended to up to 12 hours from the Vientiane depot. This would allow much greater volumes to be collected and render the refrigerated truck by road to Bangkok Airport economically feasible. This would allow the shipper to take advantage of other air cargo services to Europe and not be restricted to Thai Airways who are the only through carrier from Lao PDR and whose tariffs reflect that quasi-monopoly position. With a proper cold chain within Lao PDR and onward to Bangkok, transport costs would be reduced, more demand satisfied and other markets made possible.

Market Opportunities for the Lao Transport Sector

The transport of raw materials, is only adding value in the most basic logistic sense. While there are elements of a value chain developing in domestic distribution and time-critical movement of domestic parcels, this can only grow with demand and the ability of Lao consumers to pay for the consumer goods moved at the resulting higher price or Lao companies to demand and pay for time-definite services.

In other areas the Lao transport sector has the opportunity to take advantage of its position and the traffic that already exists but has so far not become actively involved in. Such areas would include

- (i) Transit traffic between Thailand and China as well as Thailand and Vietnam.
- (ii) The Import & Export of containers and general cargo from Thailand.
- (iii) The cold chain and handling of perishable cargo in transit and for export from Lao PDR.
- (iv) Value-adding services for perishable exports; packing, labeling, remote acceptance.
- (v) Transport-related services such as vehicle maintenance, tire services, breakdown support.

In other areas the market opportunities will require co-ordination. Creating transport value-chain capacity without demand will result in failure. Conversely the lack of a transport value-chain to makes it almost impossible for some trade sectors to develop and compete.

- (vi) Cold chain facilities and transportation. Remote acceptance of produce, cleaning, packing and labeling are all genuine value chain activities. They do not add cost for the sake of providing income. They provide added-value to the lower value produce and provide jobs for unskilled workers who become semi-skilled through product training and standards awareness. It is also scalable and fits well with small producers in rural areas as the catchment area is extended by the improved transport facilities.
- (vii) Health and safety is a cornerstone of value chain transport in developed countries. However, the first step is to develop a safety culture across the transport industry. The carriage of fuel is a case in point. Management and operator training for fuel, construction equipment, agricultural

products, long-distance buses and heavy trucks will not only benefit the transport industry but the wider economy.

- (viii) The route between North Vietnam and Myanmar via Road #17 and the new bridge, offer Lao PDR a great opportunity to exploit its position and share in the revenue this route will create. If Lao PDR does not actively participate in the transportation on this route, they will hand the advantage to Vietnam from the outset and with Myanmar already having a long-distance transport sector, Lao will be reduce to a spectator. With Vietnam already accepting Lao trucks and Myanmar having agreed for Lao trucks to enter, this is an opportunity that Lao is well placed to exploit.
- (ix) With access to qualified drivers, mechanics and operational staff, Lao transport companies can expand on their success in raw materials transport. This has been a big step, but there is a long way to go to be able to compete with Thailand and Vietnam in the higher value transport market. The cost of drivers and mechanics is already high and they are in short supply. Unless this shortage is addressed Lao PDR will be left behind and the industries which depend on transport will suffer.

The arrival of the AEC will bring opportunities as well as threats and Lao PDR must be able to respond in these areas both to expand its transportation sector and to avoid being squeezed out.

- (x) Unless Lao upgrades its international transport capacity, it will be swamped when the AEC final arrives. Thailand and Vietnam both have strong long-distance transport operations and Malaysia is likely to want to connect its high-tech factories in Penang with their customers and suppliers in China. Malaysian operators will lose out with the opening up of the border with Thailand and will be looking for routes on which to deploy their trucks. One Malaysian-based trucking company is already the largest operator in the high-tech market to China using Thai and Vietnamese contractors.
- (xi) The threat of the AEC and the opening up of cross-border transport is also the biggest opportunity for Lao PDR to exploit. However, they must have a well-trained, competitive, and quality transport industry with which to respond. Bordering five other countries, four of which are in ASEAN puts Lao PDR in a unique position to exploit its land-linked status to become a transport gateway to and from China. Chinese trucks will not be allowed access to the wider ASEAN market and there is likely to be reluctance on the part of Chinese operators to venture too far South. This can be exploited by Lao PDR.
- (xii) With a trained and disciplined transport and logistics workforce, Lao could become the investment location of choice for ASEAN countries wanting logistical access to China. If lower cost semi-skilled labor is available for transport operations, many ASEAN-based multinational operations will be looking to establish operation in Lao PDR. The availability of a skilled/semi-skilled and trained workforce is critical.

While there are many obstacles they are not insurmountable and the solutions are all relatively low-tech. Much of the traffic is already there; Lao PDR just needs to position itself to take a share. The agricultural produce is already being grown, much of it in Lao PDR. The transport industry and the government are looking for drivers and mechanics to take advantage of opportunities which already exist. Developing added-value transport and logistics services will develop regional and rural communities. Many value-chain jobs would go to local women in food processing and packing.

A summary of the opportunities is presented in below Table 4:

Table 4: Opportunities for the Lao Transport and Logistics Industry

Type of cargo ----- Value-added services	Raw materials	Domestic distribution	Import/export of general cargo	Transit cargo incl. perishables	Export of perishables incl. organic vegetables
Transport services	Significant growth opportunities for Lao operators due to increasing exports of raw materials such as aggregates, ores, minerals, timber and some bulk agricultural products	Express delivery & courier services	Creates employment if Lao operators are able to capture some market share of Thai transporters	See cold chain	See cold chain
Cargo consolidation		To service rural areas with little demand/ high distribution costs. This opens also opportunities for repair & return services (as return loads) and forward-positioning of inventory stock.			
Cold chain services/ warehousing				Opportunities by extending shelf life/ quality of products and reducing waste (but needs temperature-controlled trucks and warehouses) Comply with sanitary/phyto-	Opportunities by extending shelf life/ quality of products and reducing waste (but needs temperature-controlled trucks and warehouses) Comply with sanitary/phyto-

				sanitary regulations in export (market access) Warehouses offer opportunities for sorting, packaging, labeling, etc. while cargo is in cool chain warehouse Create opportunities for remote acceptance	sanitary regulations in export (market access) Warehouses offer opportunities for sorting, packaging, labeling, etc. while cargo is in cool chain warehouse
Other services		Management and operator training for fuel transport, construction equipment, agricultural products, and others	Establishing an ICD allows greater involvement of Lao operators in import/export trade by initiating the export from Lao PDR in containers of shipping lines	Transshipment services between Thailand and China (until implementation of existing agreements allowing the free flow of trucks)	
Transport-related services	<ul style="list-style-type: none"> - Vehicle maintenance, tire services, breakdown support - Increase the supply of well-qualified drivers and mechanics 				

Source: Authors.

Political Analysis

There are various unresolved technical issues that may be impeded by political decisions. Many of those are related to the heavy dependence of the Lao economy on Thailand as a transit country.

Lao PDR is signatory to various international agreements, most notably the CBTA and ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT). Most have been signed years ago but delays in ratification and implementation in some neighboring countries have discredited such agreements in the eyes of many Lao officials. Consequently, many believe that Lao PDR will not have to implement or abide the agreements as well.

For example, there is plenty of cargo from third countries available at international ports and airports such as Klong Toey (Bangkok) and Laem Chabang ports or Suvarnabhumi Airport (Bangkok) that could aid efficient long-haul transport of Lao operators. Since these goods are under Customs supervision and can only be transported in bond, the Thai Customs authorities do not allow Lao trucks to collect them. To date, the explanations for this are incomplete and negotiations/consultations with the Thai Customs authorities and the Thai Land Transport Department are ongoing. Key issues being discussed are what

permits are necessary, whether foreign trucks can carry bonded cargo, if foreign firms can apply for a bonded cargo transit license, or if Thai transit brokers may offer their services to foreign companies.

It seems that vested interests in the transport industry are impeding the implementation of the agreements to ensure the status quo remains and foreign operators do not get access to the most lucrative markets. Therefore, until Lao PDR is granted direct access to Laem Chabang port in Thailand, regional agreements will face credibility issues.

As a consequence of the stalling implementation of international agreements, there is increasing cooperation amongst CLMV (Cambodia, Lao PDR, Myanmar, Vietnam) countries in cross-border trade. Bilateral agreements have been signed and the flow of vehicles between Lao and Vietnam is the least restricted of any in ASEAN. There is considerable good will and good intent to develop transport links within the CLMV and growing frustration that other agreements are still waiting implementation.

There are other issues which need regulatory attention. One is the attitude towards maximum permissible axle weights which differ between Lao PDR and other GMS or ASEAN countries. Vehicle weights and standards are regional and the upgrading of the Lao vehicle fleet will have implications for other countries and their vehicles entering Lao. But to do this, existing regulation must be enforced while Laos needs to see benefits materializing from raising standards and implementing agreements. Currently, vehicle weights and length, vehicle condition, and driving safety are seen by many in the regional industry as optional issues that can be overcome through local arrangements. A culture of regulatory respect needs to accompany new regulations. However, proper respect for and enforcement of regulations could help level the playing field by raising the standards of the Lao transport industry. In practice, especially in the early stages, Lao operators need to be better than the rest and to be seen as respecting and abiding by the regulations as they will be subject to more checks than other operators due to their relative lack of influence when operating outside Lao PDR. On the positive side for Lao PDR, the Lao transport industry is not very large and most entrants into cross-border trade will therefore be new, or expanding from domestic operations. If these operators use good equipment (that complies with existing regulations), the Lao transport industry can establish itself as one of relative quality and ahead of many competitors in neighboring countries. This will have an impact on the wider market and make Lao operators attractive to international logistics brands, who continuously seek for partners abroad.

Also the Lao Ministry of Transport is openly receptive to international assistance in raising transport standards, especially in terms of training. They are acutely aware of their shortcomings and welcome practical assistance to develop the transport and logistics industry to be able to compete with neighboring countries. There is greater awareness of the impact of the AEC and AFAFGIT within the Department of Transport than in the Industry bodies and private sector.

Health and safety issues have a culture and regulatory compliance aspect. And enforcing existing regulations is just as important as writing new ones. However, if there is a will to create and enforce the culture, it will serve not only the transport and logistics industry, but the wider community. It will create employment at all levels.

There is also a feeling within the Lao transport community that Lao PDR does not reap sufficient benefits as transit country and bears a relatively high proportion of the costs. For example, the road maintenance fund is filled via a fuel levy. But fuel prices are generally much lower in neighboring countries and foreign transit trucks fill their tank before they enter Lao PDR and thereby do not, or disproportionately little, contribute to the fund while road damage comes at full costs. This has spurred calls for transit taxes to be imposed. But as Lao PDR has signed several international agreements limiting actions that can be taken in respect of transit cargo. For example, the agreements specifically forbid Lao PDR from treating foreign operators differently than national ones, i.e. levying any charges to foreign trucks that they do not charge to their own. But experiences and practices from Europe (especially the United Kingdom and Germany) may offer interesting insights that could be considered. However, even after adopting any good practices it is important to understand that income from road-user taxes may not be sufficient to recoup the costs incurred for road maintenance.

Challenges and Obstacles for Value Chain Development

The Lao transport and logistics industry is dominated by the members of LIFFA. They are the major players in the forwarding and Customs brokerage sectors but few are asset-based. The exception to this is *SMT* and their joint venture with *Nissin* from Vietnam. LIFFA's position is that - they are mostly freight forwarders whose business model does not include truck ownership - in any case there is no point in investing in transport assets as they cannot be used outside of Lao PDR and there is insufficient work for them within Lao PDR.

The freight forwarders make a good profit handling import and transit cargo transported by Thai trucks. Most LIFFA members are not interested in sending own vehicle to Thailand, China or Vietnam and are not pushing for implementation of the CBTA or bilateral and trilateral agreements providing access for Lao-registered vehicles.

LIFFA and the Department of Transport cite the lack of suitable transport companies, vehicles and qualified drivers as one reason that they do not push for international access and access to the Thai ports in particular.

The actual transport operators who might well have an interest in such access are mostly not members of LIFFA, are not well organized and are often unaware of the CBTA, the bilateral and tri-lateral agreements or the pending accession to the AEC. They are generally unwilling to respond to the opportunities which are currently available and far less prepared for lifting of restrictions. The main impediments to the Lao transport and logistics sector development can be summarized as:

- (i) A lack of awareness on the part of transport operators of the opportunities which exist and which could be realized through raising standards and pushing for access under current agreements;

- (ii) A lack of awareness of the CBTA, the bilateral and tri lateral agreements and the establishment of the AEC;
- (iii) An inability to respond to opportunities due to a lack of trained and qualified drivers. There is no process in place to obtain an 'E' class license needed for international operations on articulated vehicles. Recruiting good drivers has been cited by all sections of the Lao transport industry as a major problem;
- (iv) A shortage of trained mechanics for modern and technically complex heavy goods vehicles. Some mining transport companies report having to bring mechanics in from Thailand or Vietnam in order to maintain their fleets. They cite the lack of mechanics as a major obstacle to expansion;
- (v) There are very few experienced or trained operational managers in the transport sector. Most companies are managed by the founder who operates on a trial and error basis. There is a general lack of understanding of common accounting concepts because productivity, vehicle utilization, depreciation, and others are often not taken into account and makes investment decisions more difficult. There is also no path to obtain the necessary qualifications as required under annex 9 of the CBTA;
- (vi) An inability to sell their services and capabilities to international customers due to a lack of visibility, communication and presentation skills. They are not able to respond to enquiries, have no promotional literature and are not generally able to quote in any structured way. Most companies take the rate as offered by the freight forwarder as they have no way of constructing a cost based quotation;
- (vii) A shortage of suitable vehicles for international operations. Most operators have 10 or 12-wheeled rigid vehicles imported second-hand from Japan or Korea. These trucks are generally used on domestic operations and are not capable of carrying ISO containers. They require manual, labor- intensive transshipment. They are not the articulated semi-trailer vehicles used in international operations. Lao trucking operators are reluctant to invest in the articulated semi-trailers for fear of low utilization. They maintain that there is insufficient demand for such vehicles within Lao PDR and as they can't use them to go to Bangkok or the Thai ports, there is no point in the investment;
- (viii) A lack of vehicle financing hampers the purchase of new vehicles even should a trucker want to do so. Truck loans are available from banks, but the banks do not recognize the vehicle as collateral. In such a situation elsewhere than in Lao PDR new trucks would be obtained via lease or lease purchase. This is available from Thailand, but the uncertainty of the law in Lao PDR has prevented the leasing companies or truck manufactures from offering such deals in Lao PDR. Under leasing arrangements the title remains with the lender until the vehicle is paid off;

- (ix) A lack of understanding of the added-value cold chain. Lao transport and logistics operators are not generally aware of what could be done in terms of services to move them away from the basic transport model; and
- (x) The lack of a safety culture. Health and safety is not part of the everyday thinking of operators. Measures from vehicle loading, defensive driving, preventative maintenance, alcohol in the work place to the carriage of dangerous goods, Hazchem and accident handling procedures are not in the mainstream thinking of Lao transport companies.

Lao PDR' Transport and Logistics Sector and ASEAN

Transport and Logistics in ASEAN

The Leaders of the ASEAN states decided at a Summit Meeting in Kuala Lumpur in 1997 to transform ASEAN into a stable prosperous and competitive region with equitable economic development and reduced poverty and socio-economic disparities. They named this policy the "ASEAN Vision 2020". In 2003 at the Bali Summit the Leaders adopted the AEC as one of the three pillars of the new ASEAN Community. The other two pillars are the ASEAN Security Community and the ASEAN Socio-Cultural Community. The three pillars were to be developed in parallel and to culminate in a complete ASEAN Community by the year 2020.

In 2006 the ASEAN Economic Ministers meeting in Kuala Lumpur proposed to accelerate the deadline to 2015 whilst allowing pre-agreed flexibilities to accommodate the interests of all ASEAN member countries. At this same meeting logistics was accepted as the 12th priority sector for accelerated economic integration within ASEAN in addition to the 11 sectors nominated in 2003.

In 2007 at the 12th ASEAN Summit in Cebu this proposal was adopted by the Leaders who signed the Cebu Declaration on acceleration of the establishment of an ASEAN Community by 2015. In particular the Leaders agreed that the AEC would transform ASEAN by 2015 into a region with free movement of goods, services, investment and skilled labor with a freer flow of capital. The plan would also address the development divide and accelerate the integration of Cambodia, Lao PDR, Myanmar and Vietnam through the Initiative for ASEAN Integration.

The ASEAN Blueprint proposed a schedule for this accelerated development and was approved by the Leaders at the 13th Summit in 2007. The Cha-Am-Hua Hin Declaration on the Roadmap for the ASEAN Community (2009-2015) was signed by the Leaders in 2009. The main bodies responsible for progress towards AEC goals within ASEAN are the ASEAN Transport Ministers' Meeting (ATM) and the ASEAN Senior Transport Officials Meeting (STOM), an annual meeting held in parallel with the ATM. These bodies are advised and supported by the Logistics and Transport Services Sectoral Working Group founded in 2006 which is supported and advised by the ASEAN Transit Transport Coordinating Board (TTCB) which exists since the 6th ATM of October 2000, and the ASEAN Transport Facilitation Working Group (TFWG).

Box 5: ASEAN at a Glance

- The ASEAN Community consists of three pillars:
 - ASEAN Socio-cultural community
 - ASEAN Security community
 - ASEAN Economic Community

- Four targets within the AEC
 - An internationally competitive ASEAN
 - equitable economic development within ASEAN
 - integration of ASEAN with the global economy
 - a single ASEAN-wide market in goods and services

- The ASEAN single market aims to achieve five targets:
 - free flow of goods
 - free flow of services
 - free flow of investments
 - freer flow of capital and
 - free flow of labor

Source: ASEAN Economic Community Blueprint.

The TTCB is a body of Senior Officials overseeing the implementation of the AFAFGIT, the ASEAN Framework Agreement on Multimodal Transport (AFAMT), and the ASEAN Framework Agreement on the Facilitation of Interstate Transport (AFAFIST). TFWG is the main supporting body to assist TTCB in matters relating to the implementation of ASEAN transport facilitation agreements such as AFAFGIT, AFAFIST and AFAMT. TFWG is also the principal coordinating and implementing arm of STOM in carrying out the transport facilitation programs, projects and activities under the ASEAN Strategic Transport Plan 2011-15 (Brunei Action Plan). Below the level of the TTCB and TFWG there are an array of working groups and sub-working groups representing maritime, air and land transport together with their sub-sectors. Finally there are the Associated Entities, professional and trade associations from the transport industry within the region.

In 2012 a Mid-Term Review (for the period 2009-15) was conducted by ERIA (Economic Research Institute for ASEAN and East Asia), a research group. They noted the success achieved to date in tariff reduction (zero in ASEAN 6 and <2,6% within CLMV), the rising levels of intra-ASEAN trade and the live implementation of National Single Windows (NSW) in five Member states. They noted however that Non-Tariff Barriers (NTBs) to trade persisted, that trade facilitation still lagged with i.e. days-to-shipment still

being high (especially in Lao PDR at 29 days for documentation in a total average import-export duration of 45 days) and that the ASEAN Transport Agreements were still far from implementation. In 2012, at the 21st ASEAN Summit it was clarified that the 2015 deadline for AEC completion could be understood as meaning by the 31st of December 2015.

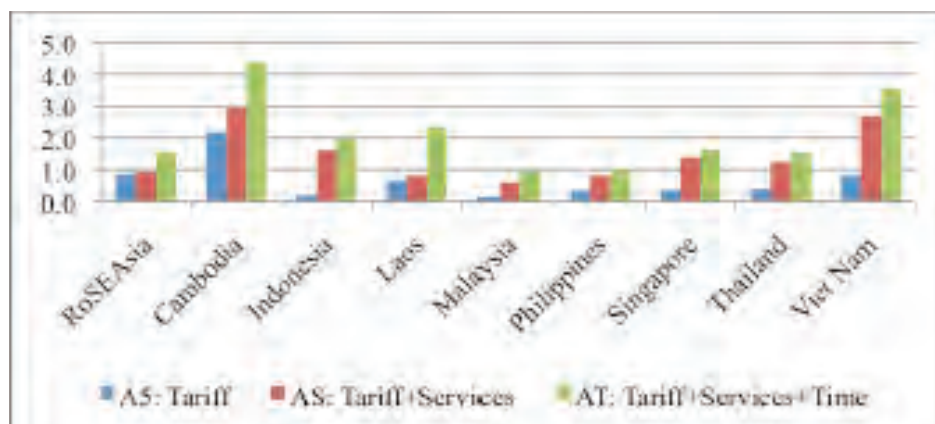
In August 2014 the AEC Scorecard Study Phase IV was presented by ERIA showing improvement in areas of trade facilitation, days to export and import, and NSW introduction, but still with large differences in performance between the ASEAN member states. Still a lot needs to be accomplished especially in the areas of NTBs, restrictions on trade and implementation of ASEAN Transport Agreements. It must be assumed that even if victory is declared in December 2015, the actual process of AEC implementation in the areas of trade and transport facilitation will still be ongoing well after that date.

It is the implementation of the five targets of the single market which will impact the Lao transportation industry both directly and, through changes in the national economy, indirectly too.

Indirect impact of AEC on the Lao transportation and logistics industry

It is expected that the continuing integration of ASEAN economies and the consequent removal of tariff and non-tariff measures to trade within ASEAN will lead to an increase in international trade and transport. In fact, trade between ASEAN countries has been growing steadily over the past decade and, with the ASEAN Free Trade Agreement (FTA) already in place, it is not expected that the AEC in itself will have a huge effect. Tariffs are already reduced to, or near, zero on many products between the core six ASEAN member states, and an average of 2.5% between CLMV states. It is thus anticipated that trade growth over the next five years will be more influenced by the organic growth of the ASEAN economies than by the effects of the AEC implementation. The AEC's mid-term review in 2012 saw the effect of removing the last few tariff and non-tariff barriers to trade as well as barriers to service industries on Lao PDR' GDP over five years being less than 1%. This benefit grows to 2.4% if measures to reduce the time taken to process import and export movements are also successfully implemented. Considering Lao PDRs

Figure 3: Impact of AEC on GDP (Cumulative percentage increase over baseline 2011-2015 in 2015)



Source: ERIA Mid-term review of the implementation of the AEC blueprint October 2012

projected GDP growth of 8% per year for 2014-2016 (World Bank, 2014), this is not overwhelming. Hence, it is estimated that growth in trade will continue at rates comparable with those seen in recent years (see also Figure 3).

Direct impact of AEC on the Lao transportation and logistics industry

Although the increase in trade may generate more business for the Lao transportation industry, there are also certain aspects associated with the AEC which may negatively affect the Lao transport and logistics sector. Most of the impact comes from international transport activities as cabotage¹¹ is not directly addressed within the AEC or its ancillary documents.

The ASEAN Customs Transit System

The ACTS is set out in Protocol 7 of the wider-ranging AFAFGIT. This system is modeled on the European New Computerized Transit System (NCTS) and is being rolled out with the assistance of the European Union (EU). Trials are scheduled to begin in 2016 on the route from Singapore via Malaysia to Thailand and subsequently on the EWEC. Central to the ACTS is the concept of the Authorized Economic Operators (AEO) and the mutual recognition of these AEO across the individual Customs authorities within ASEAN.

This implies that any ASEAN-based company, be they exporter, importer, Customs broker or freight forwarder, can become an AEO and open transit guarantees for goods moving by truck moving across ASEAN as long as they are able to obtain support for their guarantee from a national financial institution recognized by their national Customs authority. Each ASEAN Customs organization then would automatically recognize the financial guarantee provided to the national Customs. For example, a Cambodian or Indonesian trading company could issue a guarantee for a cargo that transits Lao PDR via the EWEC or NSEC. This means that Lao Customs brokers will lose their present monopoly on such transit guarantees.

At present, within Lao PDR, only members of LIFFA¹² may be licensed to issue these guarantees. Six are actually operating along the EWEC and another handful along the NSEC. Issuing the guarantees has so far been a lucrative business as the price of a transit guarantee from a Lao Customs Broker varies between US\$ 250-300 per vehicle and there are few if any directly outlaid costs. Once the AEO system is in place, the Lao companies will lose that revenue.

The introduction of the GMS-CBTA Customs Transit System posed a similar threat but the threat passed as the system was not accepted by the market in its present form. The ACTS avoids the particular weaknesses of the CBTA-CTS insofar as support from independent financial institutions will be on hand, but also this new ASEAN system has not yet been tested in actual operation in the region.

¹¹ Cabotage refers to the operation of domestic sea, air, or other transport services within a foreign country (The Law Dictionary, 2014) However, a large share of long-distance domestic trucking in Lao PDR is one leg of an international cargo movement so there will be indirect consequences also for the domestic long-distance trucking activity

¹² LIFFA currently provides a guarantee to Lao Customs for the taxes and duties on cargos in transit. This guarantee is supposedly supported by each member, but is in effect under-written by the Lao Ministry of Public Works and Transport. No claims have ever been made as the Customs Brokers only offer this service to their know customers.

Market liberalization for international trucking operations

As did the GMS-CBTA, ASEAN's AFAFGIT and AFAFIST aim to allow recognized trucks from any signatory country to apply for one of the limited number of permits to circulate and trade freely between the countries of the region, in this case ASEAN. Both AFAFGIT and AFAFIST specify in their protocols the type, quantity, and technical specifications of the trucks which qualify for international trucking permits and also set out the obligatory third party liability insurance requirements.

The difference to the CBTA consists primarily in that

- (i) No Chinese trucks qualify for ASEAN permits but Malaysian trucks, which could not enter under the GMS-CBTA, can operate freely under AFAFGIT/AFAFIST in all GMS countries except China.
- (ii) The trucking permit is legally separate from the ACTS. A truck may still circulate freely without the ACTS.

This liberalization presents both a threat and an opportunity to the Lao transport and logistics industry. If Lao or Lao-based truck operators are prepared to invest in suitable vehicles and qualified staff to meet customer requirements (especially to transport higher value goods), then the market liberalization measures offer the possibility for Lao PDR to use its central location to build a successful international trucking industry and benefit from further trade facilitation and economic integration.

On the other hand, if Lao or Lao PDR-based operators are unwilling or unable to take up the challenge, their already small and weak industry will lose even more market share. Truck operators based in neighboring countries will dominate international transport to/from and through Lao PDR, leaving Lao operators only purely domestic transport. In terms of pure trade and transportation considerations this would not be a disaster as long as the services provided by the foreigners were of high quality and the prices are competitive. Considerations of employment creation and poverty eradication could however lead policy-makers to give preference to Lao-based operators.

These issues have been discussed in very concrete terms in the framework of the trilateral Memorandum of Understanding (MoU) on the liberalization of trucking services along the NSEC; in return for granting the transit rights, that Thailand and China so desire, the Lao government is demanding various concessions including access to Laem Chabang port, the right to levy transit fees under some title or other, and assistance to the Lao transport industry in building up a Lao-foreign joint venture to develop a Lao "national champion" on that route.

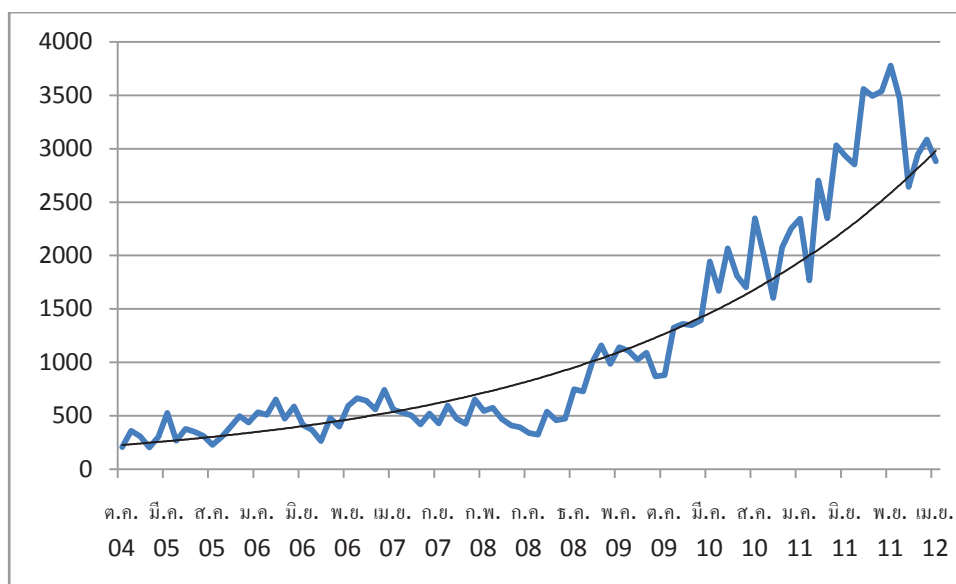
In any case, full implementation of ASEAN liberalization plans will be challenging. The schedule itself leads to very little change before 2017. For example, on the Thai-Malaysian border, despite the fact that since 10 years the two countries are signatories to the AEC procedures and neither has either financial or technical constraints, transport procedures are still on a total transshipment basis with little changes. Local business pressures are stopping the further opening of the border to through traffic. This pressure comes from the Malaysian trucking industry who fears competition from the more efficient and cost effective Thai trucking industry. Over years of negotiations progress has been made, but full liberalization has not yet taken place.

Trans-loading and related logistics services

Presently, all transit cargo from e.g. Thailand to China, Thailand to Vietnam, etc. has to be transshipped at least once on its way through Lao PDR. The trucking volume has grown over time along major transport routes such as the NSEC, EWEC, and Bangkok/Laem Chabang-Vientiane route and Lao PDR has been able to build a logistics service-industry based around the transshipment activity. Figure 3 shows how traffic for example evolved along the NSEC.

Truck traffic in- and out-bound between Thailand and Lao PDR through the Chiang Khong Customs Point has grown more than twelve-fold between 2005 and 2011. Since December 2013 and the opening of the new bridge passenger traffic has increased significantly (approx. 1,500 vehicles per month) but truck traffic has remained at around 3,000 trucks per month of which approximately 65%% are transit loads (75% of which in turn are general cargo, the rest tank-trucks with oil and gas products) which have to be transshipped. Around 1,000 trucks per month are bilateral Thai-Lao import and export traffic both general cargo and tankers.

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



Source: Ksoll & Quarmby, *Private Sector Views on Road Transport along the North South Economic Corridor*, 2012

On the EWEC and Route #12 combined traffic volumes are around 7,000 loads per month over the Mukdahan-Savanakhet border crossing, about 50% of which need to be transshipped.

With the liberalization, international trucks will be able to cross international borders without transshipping their cargo. The revenue loss to Lao PDR if no transshipment is required at all would be around US\$ 4.5 million per annum. Perhaps more importantly, the transshipment activity has provided hundreds of jobs for unskilled/semi-skilled workers in the border areas, regions which offer little alternative employment opportunities. This would be exacerbated by the loss of employment in the other

service industries such as restaurants, hotels, shops etc catering to the drivers and trucks forced to stop and spend time at the borders.

In fact transshipment services will not disappear overnight. Transshipment will be required as long as some trucks either do not meet the technical specifications set out in the various agreements or do not have the necessary permits to operate across the corridor. The permits will be limited in numbers. And even later, once sufficient numbers of permits are granted, discussions with truckers indicate that many will prefer to continue with the relatively simple practice of transshipping at the border. Some customers will accept it as long as there is a price advantage whilst risk-averse customers will prefer a through-movement.

Ownership liberalization for foreign investors

While market access liberalization will only gradually change operational practice, it is likely that changes in ownership regulations may have a greater and faster effect. Once the "free flow of services" take effect in 2015 (originally scheduled for 2013), companies from ASEAN countries may buy a controlling interest in transport and logistics companies in Lao PDR. The AEC regulations will allow an up to 70% ownership by non-Lao, ASEAN-national companies. This could have a strong effect on the already fragile transport and logistics industries in Lao PDR.

There is a strong probability that foreign transport and logistics companies will start to establish offices in Lao PDR under the liberalized ownership rules. Their objective will be to fill the vacuum left by any unwillingness of Lao firms to invest in international trucking. This will have a detrimental impact on existing Lao operators:

(i) Foreign companies will take advantage of the geographical location of Lao PDR

ASEAN transport and logistics companies may start to use Lao PDR as a base for their transport, especially trucking, operations and take advantage of Lao PDR's geographical position bordering China, Thailand, Vietnam, Cambodia and Myanmar. They will look to take up permits issueable to Lao-registered companies under bi, tri or multi-lateral agreements. These permits are normally issued in equal numbers to each signatory country. In (for example) Thailand or China with their large truck fleets and import-export volumes, the permits will be scarce and valuable. In Lao PDR, on the other hand, they may not be taken up at all. To set up a Lao-based company would present a rational move for a transport company short of permits in its home market¹³.

(ii) Wage pressures from increased competition for Lao labor

The vehicles which the foreign owners put into operation will need Lao drivers and the logistics operations will need Lao workers, but there will not be enough semi-skilled and experienced workers to satisfy the demand from the new entrants. This will create inflationary pressure on wages in the sector and may squeeze existing Lao operators out of the market unless they make a significant effort to upgrade the existing industry labor force and increase the efficiency and productivity of their own operations.

¹³ There may be discrepancies between the AEC regulations and the International transport agreements on what constitutes a "Lao truck". This discrepancy certainly will exist with CBTA rules

(iii) Competitive pressures from better equipment and skills

The new market entrants will bring business know-how and operating skills which will expose the shortcomings of the domestic trucking companies who will no longer be the only option. Years of under-investment in equipment, a lack of staff training and customer service orientation will be exposed. Lao operators may be pushed out of the market simply by not meeting customers' requirements in the face of an increased supply of quality service.

(iv) Existing relations with international clients

The new companies will have a direct connection to international customers : this will be the main reason for their setting up in Lao PDR. Thus not only the established Lao trucking companies but also the Lao 3PL who have been the contact between local truckers and multinational companies (MNCs) customers abroad will lose business.

While these developments may have an impact on the Lao private sector, from a Lao national government perspective the ownership is not of primary importance. To have foreign-owned Lao-registered companies operating Lao trucks on international routes is virtually as good as having Lao-owned companies doing the same thing. Whether national or foreign-owned, companies registered in Lao PDR will generate employment, pay taxes, train up their staff etc. regardless of their ownership. Having foreign owned companies is far better than letting the opportunities opened to Lao PDR go begging.

Liberalization of skilled labor movement

It is anticipated that the measures proposed by the AEC regarding the free flow of skilled labor will not have any significant effect on the Lao transportation and logistics industry as the measures proposed are limited to

- Easing of visa regulations on staff employed in cross-border trade;
- Moving towards Mutual Recognition Arrangements (MRA) recognizing national certification of accountants, architects, surveyors, doctors and dentists throughout the region; and
- Facilitating academic study-exchanges and training of trainers.

Conclusions and Recommendations

The estimate of transport representing 4% of GDP is well below other similar countries where it is around 8%. In simple terms this means that transport is contributing half of what it should to the Lao economy. This is not only a poor result for Lao transport; it is bad for the overall economy as the lack of the transport value chain services affects the development of other sectors of the economy. Transport provides skilled and semi-skilled jobs in regional centers. The ancillary logistics value-chain and support services also provide semi -killed jobs in areas where they are most needed.

70% of the workforce of Lao PDR is still involved in agriculture. Even when their produce is exported, it is shipped in its most basic form. The opportunity to add value is passed to other countries. By providing value-chain handling and cold-chain transport, benefits will accrue to both the transport sector and to rural communities. Developing the knowledge and capacity for handling perishables would also be of

significant benefit to Lao PDR in the transit of fruit and vegetables between Thailand and China. With a low-cost workforce and a large volume of through traffic, Lao could develop cold-chain handling facilities on the NSEC where Thai produce could be prepared for the Chinese market.

Helping the transport and logistics sector to reach its full potential will not only have a direct benefit on GDP by growing that sector, it will also provide a significant benefit to other sectors by allowing them to compete and become part of regional and international value-chains. Lao PDR is in the unenviable position of having much of its transport provided by its neighbors while its own industry is unable to compete due to a lack of capacity. By addressing the shortcomings in training and quality, the Lao transport industry will be able to claim some of the revenue that is literally passing it by.

For Lao PDR to increase its share of the transit market, the Lao transport industry will need to develop rapidly in terms of quality and size to take advantage of its position as the gateway between China and Thailand. For example in Europe, the trucking industries in Belgium and the Netherlands are far bigger than their home markets need because they use their location between major ports and markets in France and Germany to earn revenues for transport to and through their neighboring countries. The Lao trucking industry does not participate in the transit trade to date. Lao involvement is restricted to Customs clearance and transit guarantees provided by Lao agents and the use of their cranes to move containers from truck to truck. The swapping of containers has no long-term future and the rollout of the ACTS will see competition for transit guarantee and loss of margin.

Further, Lao PDR is prevented from charging transit or road-user fees by the treaties it has signed (any transit taxes to compensate for road damage or other environmental impacts of trucking through Lao PDR must be charged on non-discriminatory terms equally to both Lao and foreign-owned trucks). The challenge is for Lao firms to become a major base for international trucking and to increase its share of the land-transport revenues generated in the region. To make the Lao PDR the base of choice for regional transport companies, Lao trucking companies must upgrade and become more competitive.

With broad-based economic growth in the region in general and more specifically the increase of factories being built in Thailand, Vietnam and China increasingly linking production of components and other inputs with plants assembling final products, the demand for road transit and particularly higher-value trade within the region is increasing. In this context, the regional road transport industry together with the infrastructure and transit procedures are critical for the expansion of competitive production networks. The development offers an opportunity for developing a more competitive and thus lucrative transport sector in Lao PDR. If the transport industry does not respond to the opportunity, it will be left behind by Thailand and Vietnam who already have substantial road transport capacity and are looking at all opportunities to expand.

On the domestic market the transport industry is evolving in response to developing demand. The domestic bus industry is well organized and freight transport has moved into time definite and consolidation services. However, there is no cold chain and this is preventing small horticultural products from achieving their potential on both domestic and regional markets. Consolidation services are growing

to deliver imported consumer goods, but not evolving in a way which will help small producers join regional or even national value chains.

For the Lao transport industry to grow to the size the industry in similar countries (8%), let alone take advantage of its position, it needs to address several key areas:

- (i) Driver training: This has been the constant in all interviews at all level of industry and government. The lack of trained, qualified and licensed drivers is holding the industry back. There is no process in place to introduce 'E' Class licenses for drivers using articulated semi-trailers on international routes and thus of course no plans to train drivers up to that standard. Even the status of the drivers of 22-wheeler draw-bar trucks is dubious as they are at present operating on 'C' class licenses at best and these are for rigid trucks without trailers. This issue is acknowledged by the department of transport to be a major obstacle to the expansion of International trucking operations.

The standard of Lao drivers is cited by the Thai authorities as one of their objections to lifting restrictions on Lao trucks running to Bangkok. Even in Lao PDR LIFFA give this as a reason for not pushing harder to obtain the traffic rights.

- (ii) Vehicle mechanics and auto electricians are in very short supply. All transport companies mention the lack of skilled and qualified mechanics as a problem limiting their operations and expansion. Both truck and bus operators have to bring in contract workers from Thailand and Vietnam to cover for the shortage and are paying high wages to attract and keep them. This is not a short-term training need and the shortage of trained mechanics is severely limiting the expansion of the Lao transport sector. In fact, the situation will only get worse as large numbers of trucks and equipment are being offered for sale in Vientiane at present. The increasing level of sophistication of second-hand equipment is yet another factor exacerbating the problem because even second-hand trucks such as Hino, Isuzu and Hyundai now need diagnostic analysis.
- (iii) Basic business and operational training is not available for SME transport companies: Financial management in terms of depreciation, costing and preventative maintenance is lacking. There is a knowledge gap on business opportunities providing value-added services and cold chain service. Transport operators tend to stay in the subsector in which they started. They are not diversifying due to lack of awareness of other markets and opportunities and a clear awareness of their lack of a wider industry knowledge.
- (iv) Health and safety: From the lack of safety standards in driving, loading, dangerous goods, vehicle condition and tires to the use of the conditions in the vehicle workshop, there is a lack of a health and safety culture. The rapid increase in domestic fuel distribution vehicles is of concern about driver training as well as maintenance and the overall safety culture. Unless this is addressed, there is a high potential for major incidents. It also prevents Lao from entering

the long-distance tanker transport market bringing fuel in from Thailand and Vietnam or transiting fuel through to China.

- (v) Value Chain development training for operators and rural development officials: Most operators, growers and officials are not aware of what could be achieved by developing cold chain capacity and adding value services such as sorting, washing, packing and labeling products. This sort of training could extend beyond operators to those looking to diversify.
- (vi) ASEAN awareness training: There is very little knowledge at the operator level of the threats and opportunities for Lao operators now and within the AEC. The operators are entrepreneurs by nature, but they are not informed or involved in the AEC process. Such training would also include requirements and obligations for international operators, regulations in neighboring countries and the ACTS. One key element would be the recognition of AEOs from other ASEAN countries and their right to operate within Lao PDR.

The representative body of the transport and Logistics industry is LIFFA. However, its members do not seem to expand their operations. The next level down are the operators, some of whom are members of the GMS Freight Transport Association (FRETA) and are the backbone of the Lao transport industry and need to raise their capacity to compete.

- (vii) Facilitate access to vehicle financing: There is a need to continuously invest in vehicles in order to expand the fleet or at least to maintain one that allows for competitive pricing. This is difficult for small and medium transport firms because they are not able to access loans. In most countries, including Thailand, the vehicle itself is the security for lease purchase or operational leasing and the trucking industry normally offers leasing with a deposit. In Lao PDR this is not an option because of the financial institutions' inability to repossess the asset in the event of default. This restricts the development of the sector.
- (viii) Encourage the use of trailers and semi-trailers: Lao PDR needs to actively promote the purchase and use of semi trailers as these are the backbone of international freight. Taxation and registration concessions could be used to encourage this. Registration concessions for 5 and 6 axle vehicles would also have benefits for the existing infrastructure by reducing damage from axle weights.
- (ix) Moving to recognize trailer swapping between CBTA countries under bilateral and trilateral agreements would be a major step forward in reducing the costs of transit traffic. Lao PDR is in a position to promote this under the EWEC extension agreement and then promote it as a wider CLMV solution. However, if Lao PDR has not increased its semi trailer/tractor unit capacity, other countries will reap the benefits.

Further Research

Due to the scope of the study and limitations in time, resources, etc. there are various areas that could be explored with further research to support and strengthen the Lao transport and logistics sector. The following list highlights a few issues (this list is not exhaustive). For example:

- (i) Quantitative analysis of the potential benefits of stimulating the transport sector: The contribution of the transport sector to GDP has been estimated as being only 4 % or less than half what could be expected in an economy of similar development. For example, the wider logistics industry contributes not much more than the transport sector itself (as there are little added-value logistics activities and warehousing). Therefore, one area of investigation could be how much could the sector contribute to the economy if some or all recommendations were implemented and what recommendations have the largest impact to help policy makers make informed decisions about priorities? Both a baseline study and quantitative analysis is needed to shed light on such questions.
- (ii) Detailed analysis of how transport and logistics could contribute to the development of the agricultural sector: Agricultural products offer vast potential for regional economies across the country and could play an integral part for Laos' overall (socio-)economic development. There is already substantial activity and existing demand through i.e. contract-farming arrangements etc. This review would identify areas where the transport and logistics sector could provide value-added services such as cold chains, etc. and develop pilot projects. Eventually this may encourage private sector investment in areas where products are not able to reach the markets due to logistics constraints.
- (iii) A review of the effectiveness and benefits of free-trade zones and special economic zones: There are several such zones presently being developed in Lao PDR. Besides key questions on benefits for regional economies and longer-term sustainability, more relevant for the transport and logistics sector is whether such zones attract traffic by themselves or are they only viable if traffic is diverted to them.
- (iv) A cost-benefit analysis of cross-border traffic facilitation: Lao PDR along with other CLMV countries has a significant transshipment industry at several regional border crossings. These transshipment operations bring both benefits and costs: They add additional costs on the transit of goods, disrupt the flow of time-sensitive cargos (add time), and reduce oftentimes predictability of lead transit times. However, on a local level the "unnecessary" transshipment operations and resulting charges contribute oftentimes a considerable amount to the regional economies because they employ local, unskilled and semi-skilled workers who would otherwise have no income and may gravitate toward larger urban areas to find legal or illegal work. Therefore a key question is to what extent does the benefits of the local economy outweigh the penalties incurred to transit traffic.

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 national and international agreements and plans in place, available statistics on the transport and logistics industry within Lao PDR and an overview of development planning and challenges for the transport sector in Lao PDR and the surrounding countries.

The field research complements 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.

Sample Selection

A total of 29 interviews took place over a period of five weeks (June to August 2014). The sample consists of the following types of firms, associations and organizations (see Table below):

Table 5: List of Stakeholders Consulted

Private Sector	
- Freight Forwarders	3
- Customs Brokers	3
- Domestic Transport Consolidators	3
- Raw material / Mineral Transporters	2
- Domestic Express Operators	2
- Fuel Distributors	1
- Vegetable Exporters	1
- Domestic Bus Operators	1
- Other Logistics Service Providers	2
- Industry representatives	2
Public Sector	8
International Organizations	1
Total	29

Limitations

Availability of accurate, complete, and reliable statistics remains one of the key challenges in the GMS countries, especially in Lao PDR. If data is available, cross-country comparisons are difficult due to different methodologies in collecting and analyzing data. In some cases, the lack of "usable" data was made up with statistics from international organizations or other secondary research. In other cases, primary research has been undertaken.

The total number of firms engaged in the transport and logistics is relatively small compared to neighboring Thailand and Vietnam. In order to arrange interviews with exporting/importing firms, local trade and industrial associations or other local partners have been heavily engaged because the majority of firms operating in Lao PDR (both transport service operators and importers/exporters/traders) are small. Hence, firm selection was not random and the sample size relatively small. This limitation applied particularly to the domestic transport sector. Moreover, the leadership of trade and industry associations rarely represents fully the interest of their members. In part, this can be attributed to the widely fragmented transport and logistics industry. In most cases, the leadership comes from larger, more sophisticated companies, that have exposure to foreign markets. In cases where the leadership has vested business interest, answers may be biased, or not fully in the interest of their membership.

In addition, it has to be noted that trust is an important element for successful interviews, especially in the GMS. As some interviewees did not know GIZ nor the interviewers, few interviewees disclosed all information despite a lengthy introduction of this survey.

Appendix II: Lao's Connectivity: Land Locked to Land Linked Strategy

A key element of Lao PDR's development strategy is to evolve from a land-locked to a land-linked economy. Due to the Lao PDR's geographic position between three of the strongest economic regions in Asia – South China, Northern Vietnam, and Bangkok, Thailand – opportunities abound for expanding trade and transit through the Lao PDR. Substantial investments have been made by Lao PDR, international lenders and donors in establishing the infrastructure (building bridges, roads, etc.) to link these three regions. Starting with the EWEC using Route #9 in central Lao PDR and expanding to links directly between southern China (Yunnan province) and northern Thailand through northern Lao PDR, using Route #R3A, overland shipping is becoming more and more competitive compared to regional air and sea alternatives (see Figure 5). As a result, truck cargo across Lao PDR has increased significantly over the last decade. And further, higher-value-added shipments are growing most rapidly, as production networks between the three regions integrate and exchange components between production centers (Ksoll & Quarmby, *Private Sector Views on Road Transport along the North South Economic Corridor*, 2012).

The EWEC links Thailand to Vietnam via Lao PDR (Route #9) and was the first through route opened up for trucking between Thailand and Vietnam via Lao PDR and on to China. The opening of the second Friendship Bridge on the EWEC linked Mukdahan, Thailand with Savanakheth, Lao PDR in 2007, replacing roll-on, roll-off truck ferries. Up to then, the ferries caused significant delay and faced significant problems in unloading during both the dry and wet seasons due to fluctuations in river levels and deep mud on both sides. The opening of the bridge and the massive upgrade of Route #9 reduced the transit time across the EWEC through Lao PDR to less than four hours, down from at least 15 hours. In parallel, Lao PDR adjusted its transit policy to reduce costs associated with transit guarantees (explained in more detail below). This made the transit of Lao PDR by road a realistic and competitive transport route relative to air and sea transport and opened up the possibility for cargo to move by road between Thailand and Vietnam/China via Lao PDR. Transport through the EWEC via Route #9 and Route #12 via Cha Lo have increased to around 100,000 vehicles a year (Asian Development Bank, 2014).

The NSEC links Northern Thailand and Southern Yunnan province via Route #3A through Lao PDR. The NSEC plan also includes an alternative route (Route #3B), through Northeastern Myanmar to link with China (crossing point Dalua - Mongla) via Kengtong to Thailand (crossing point Tachilek - Mae Sai). However, for political and security reasons, this route has never been passable, and indeed no road improvement works could be carried out, leaving the road through Lao PDR as the only useable North-South route.

From the opening and upgrade of the Huayxay-Boten road in 2003 and 2008 to December 2013 when the Fourth Friendship Bridge over the Mekong was opened, use of the NSEC route was restricted by the need to use a "roll-on, roll-off" truck ferry, with restricted operating hours (closed on weekends, for example), to cross from Chiang Khong, Thailand to Huayxay in Lao PDR. The unavoidable transloading of all transit cargo between Chinese and Thai trucks in Boten by purely manual labor was, and remains, a further disincentive to load valuable, perishable or fragile cargo along this route. The transloading operation in Boten operates well under the present conditions, and now offers a 45 ton top-lifter crane to

enable lift-on/lift-off operations, but the fact that no transit cargo can run between China and Thailand without transshipment presents a constraint to increasing the level of high-value cargo on the route.

Figure 5: Map of GMS corridors as defined by ADB



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Source: Asian Development Bank, 2010

Nonetheless, traffic on the NSEC (measured at Chiang Khong) surged from 3,750 freight vehicles per year in 2005 to 36,000 freight vehicles in 2012 (see Figure 2 on page 42). There was a slight flattening of the growth rate of Thai perishable exports to China in late 2013 (anecdotal from operators) but it is expected that the increasing efficiency of the route will expand both its catchment area, to include the Chengdu/Chongqing conurbation in Sichuan province, and also its commodity mix to include high value ICT and automobile components. For passenger traffic, initial months also indicate that since the opening of the Fourth Friendship Bridge the number of tourists crossing the bridges in their own cars (including Chinese) has increased significantly although it is early to predict a long-term trend.

Data from both Boten and Huayxay border crossing points have been obtained but overall data quality is variable and some discrepancies are obvious. The passenger vehicle data at least seems to be measured on a consistent basis. The data indicates the total for both ways (see Table 6).

Table 6: Passenger Traffic Through Huayxay Border Point (measured in selected periods in 2013, 2014)

	Cars per month	Vans and buses per month	Remarks
01/10/12-30/09/13	180	6,5	FY 12-13
01/10/13-11/12/13	279	8	Using ferry
12.12/13-30/03/14	754	117	Using new bridge

SOURCE: Unknown

Customs operations at the two border crossing points are good by local standards and further improvements are planned. At the Thai/Lao border, the facilities on both sides of the bridge are brand new, built together with the bridge, spacious and well equipped, including a remote scanner on the Thai side which is used in cooperation with the Lao border authorities.

Customs on both sides are open 7 days a week for transit traffic with core operating hours (8hrs./day). Opening hours are coordinated between the two neighboring countries and overtime is available (with advance notice) between 6am and 10pm. Single-window and single-stop inspection are planned but not yet implemented, however Customs are regarded by the shipping community as reasonable and flexible, inspections are risk-managed and cargo-friendly. In Boten, Lao Customs has to cope with higher volumes of traffic and older, cramped facilities. Space for expansion is also limited by the hilly terrain but as in Huayxay, operational hours are flexible.

Road conditions on the route Bangkok-Kunming are in general good and of international standard. The road within Lao PDR, from Huayxay on the Mekong to Boten on the Chinese border is relatively new, built 1998 to 2003 and upgraded in 2008. According to the MPWT Department of Roads the entire Lao section is also built up to the 11-tonne axle standard (Lao national standard 9-tons axle), but it is only 2-lane and runs through hilly, if not mountainous terrain. At some points, (particularly descents), care must be exercised. Speed limits down to 30km per hour for HGV are in place locally but are often flouted. We have no statistics for road accidents but the figure is said to be high and road safety is a concern for locals. The road is, however, operating well below its nominal capacity, weakening the case for widening.

Three main trade-lanes share the NSEC

- Bilateral trade between China and Lao PRD through the Mohan-Boten border crossing
- Bilateral trade between Lao PRD and Thailand through the Huayxay-Chiangkhong border crossing
- Transit trade between Thailand and PRC passing through both border crossings.

Goods moving depend on the origin/destination but can be largely summarized as follows:

- China to Lao traffic is largely machinery and equipment for projects and industrial use, plus consumer goods;
- Lao to China is mostly agricultural products and timber;
- Thailand to Lao is construction materials, petroleum products, consumer goods, motorcycles and cars;
- Lao to Thailand is mostly agricultural products;
- Thailand to China is mostly petroleum products, tropical fruits and flowers;
- China to Thailand is mostly consumer goods, temperate fruits, vegetables and flowers.

As the bilateral trade between China and Lao PDR is larger along the NSEC than that between Lao PDR and Thailand the volume of freight traffic over the Mohan-Boten border crossing is greater than that over the Huayxay/Chiang Khong border.

Data is of low quality but it seems that whilst the transit traffic has traditionally been balanced at about 900-1,000 loads per month in each direction (with a drop in Thai origin traffic to around 550 loads per month in 2013) and thus equal volumes in Boten and Huayxay, the bilateral traffic in Mohan/Boten at around 2,500 loads per month is far larger than the bilateral Thai-Lao trade of around 1,000 loads per month. Total freight traffic in Mohan/Boten thus about 3,000-3,500 loads per month with Boten/Huayxay at 2,000-2,500. A significant amount of trade avoids the official border crossing points. Small boats operate almost at will over the Mekong with consumer goods and on the northern border major traffic flows of agricultural products and animals move into China undocumented on side roads.

Although official statistics do not record the nationality of trucks crossing the borders it is clear that the Lao trucking industry is under-represented in all three official trade lanes despite the existence of bilateral trucking agreements with each of their neighbors. Lao trucks only enter China as far as the city limits of the border town Mohan. They may, in theory, go as far as Jinghong, but commercially this is uninteresting; return loads are available only in Mohan or in Kunming, but Kunming is forbidden. Thus Lao trucks drop off and reload in Boten or at the large duty free ports in Mohan which serve as consolidation areas, as hubs, and also as market places, for cargo to/from the rest of China.

Chinese trucks arriving at the border with full loads for Lao PDR may proceed to the Lao side at Boten, clear Customs and then either trans-load the cargo by hand to a Lao truck there or drive on through to the final destination in Lao PDR. The decision as to which cargo will be trans-loaded and which stays on the Chinese truck takes into account many factors and, in practice, seems to be negotiable and ad hoc. The availability of suitable Lao trucks is often a factor. The Lao fleet consists of high-sided open trucks of a certain age, sometimes 10-wheelers, more often second-hand Japanese 12 or 14-wheelers with 15 tons

nominal capacity. The Chinese use similar trucks, but also employ, where suitable, 22-wheel 12 meter semi-trailer rigs. These, however, are not suitable for delivery on bad roads or in mountainous areas.

Bilateral trade between Lao PDR and Thailand

In the bilateral trade with Thailand too, Thai trucks usually go through to final destination in Lao PDR if that happens to be in Bokeo province. To continue through to other provinces they need a special permit but, if no suitable Lao truck is available, such a permit can be granted. This is automatically the case for cement-silo trucks, tanker trucks and container trucks. Lao trucks may, in principle, come over to Chiang Khong but are convinced, rightly or wrongly, that the Thai police will not allow them to go further. Due to the trade imbalance¹⁴ there are usually Thai trucks available empty in Lao PDR, thus these are usually used for Lao exports. Not all, especially not the smaller general-purpose trucks used for construction materials and agricultural products, are new, but the larger trucks generally are. Lao trucks are the usual collection of second-hand 10 and 12-wheelers.

Figure 6: 12 Wheelers waiting at the Boten / Mohan border.



¹⁴ Lao imports from Thailand in billions of US\$ (International trade Center)
 2011 4.243...2012 5.806 2013 6,192
 Lao exports to Thailand
 2011 3.016 2012 3.210 2013 3.111

Bilateral trade between Lao PDR and China

There are no Lao trucks involved in the transit trade between Thailand and China. Thai trucks run up to Boten where transshipment onto Chinese trucks takes place. The Lao involvement is restricted to the transit Customs clearance at the border points and the management of the transshipment yard. The core reason is that Lao PDR does not have any available vehicles of the type used in the transit trade (50-ton 6-axled 22-wheelers with 12m semi-trailers). The same applies for the petroleum trade which requires tankers or similar specialized vehicles.

The non-involvement in the transit traffic is a particular drain on Lao PDR's resources. There is not even a putative benefit for Lao importers and exporters but there is a significant cost burden for Lao PDR in maintaining the transit road. This topic is being discussed at present (June-August 2014) among China, Thailand, and Lao PDR on a proposed trilateral agreement granting traffic rights to trucks of all three countries along the entire length of the NSEC between Bangkok and Kunming. The proposed agreement is very attractive to China and Thailand as it benefits not only their trucking industries but also their importing and exporting communities. The benefits to Lao PDR are less clear and need to be negotiated.

The full scope of the discussions is outside the remit of this study but one very relevant aspect is the proposal that, by creating a strong and competitive international trucking industry, the Lao PDR could not only draw revenue from an expanding traffic on the NSEC but also, as a capacity building measure increase the country's capability in an area where it possesses potential (though not currently actual) competitive advantage. Assistance to the Lao PDR in creating such an industry capacity is a possible bargaining chip in the negotiations.

In the last two years, upgrades of Route #12 in Lao PDR and the completion of the bridge across the Mekong between Nakhon Phanom, Thailand and Tha Khek, Lao PDR have opened up another route between Thailand and Vietnam through Lao PDR via Cai Loa. This route has reduced transit times between Thailand and South China by at least 8 hours as it enters Vietnam much further North than the EWEC, avoiding some of the difficult road conditions on the Vietnam National Highway #1 as well as shortening the distance considerably.

There are other roads through the mountains linking Lao PDR and Vietnam, which have long been used for local or cross-border traffic. However, these routes are not suited for larger vehicles and semi-trailers that are needed to carry 40-foot (FEU) containers on the routes between Thailand and Vietnam/China. Customs checkpoints on these borders are local with limited access to banking services and to date, access to the electronic Customs system.

It is expected that the next significant route to develop will be the trans-Northern route from Vietnam to Myanmar via Lao PDR. Vietnam is making a major investment to build a modern road from Hai Phong and Hanoi to Dien Bien Phu, which can link to Route #17 in Lao PDR to enter into Myanmar. With the increasing economic development in Myanmar, this routing is of considerable interest to many operators because it is much shorter than transporting goods by road through China and down to Myanmar and it obviates the need to transit Thailand en route to Myanmar.

Looking forward, improvements in transport infrastructure in and around Lao PDR will continue to reduce the cost of land transport within the region and through Lao PDR. Lao PDR is in a strategic position to take advantage of its land-linked position and become a major transportation service provider in the region. As noted above, road transport is increasingly substituting for air and sea shipment within China and northern ASEAN. This traffic will increase as China moves manufacturing inland to take advantage of lower labor costs. As the NSEC route improves and allows for definite timings to be achieved, this will likely become the primary overland route between Thailand and the new factories of Central and Southwestern China. Also, higher-valued manufacturing components will use this route much more as cargoes shipped by air and sea will switch to road. This will be in addition to the bilateral traffic between Thailand and China in fruit, vegetables, oil products and other lower-valued trade.

High-tech and high-value shippers, however, are still concerned about transshipment at borders. They still worry about damage to cargo from unnecessary handling, even if the container is moved by crane. Once trailer-trucks are allowed to run through, or trailers, with just a change in tractor head, this should induce another big jump in volume, especially to Vietnam and on the perishables on the NSEC. Integral trailers are 3-4 tons lighter than sea-freight containers on flat trailers. This means more cargo for the same cost or less operating cost (less fuel) and less road damage as trucks will have lighter tare weights (unladen weight). This in turn will reduce the cost per kilo of freight and convert more air and even sea freight to road. The Chengdu to Chongqing belt of China is two days from any sea port in China. Within those same two days the trucks the truck could be in Lao PDR and just 2-3 days from Bangkok.

Appendix III: International Transport Agreements

Lao PDR is a member of several international organizations and has signed a range of agreements which included provisions on transportation and Customs transit. As a member of the

- World Trade Organization: Lao PDR has accepted provisions of the General Agreement on Tariffs and Trade (GATT). In 2013, Lao signed the Revised Kyoto Convention;
- ASEAN: Lao is a partner in the AFAFGIT;
- GMS: Lao PDR has signed the CBTA.

There is considerable concern within the Department of Transport and the Lao transport industry in general, regarding the movement of foreign trucks on Lao territory, especially along the EWEC and NSEC. Thai and Vietnamese trucks are blamed for much of the road damage caused by overloaded vehicles and vehicles running with higher axle weights than the 9.1 tons permitted on Lao roads (ASEAN standard is 11 tons). The damage from overweight axles is significant¹⁵ and the road maintenance fund, mainly replenished through a fuel levy¹⁶, is not sufficient to keep up with the wear and tear. There are continuing calls for foreign vehicles to have to pay transit taxes to repair and maintain Lao roads and to pay for the additional resources needed to provide transit services and facilities. Since Lao PDR is a signatory to these international agreements, the government must find solutions within those agreements to ensure all road users are treated equally.

The Cross Border Transport Agreement

The six countries of the GMS have signed the CBTA. The original agreement was made between Thailand, Lao PDR, and Vietnam in 1999 and was later expanded to Cambodia (2001), China (2002), and Myanmar (2003). It was designed to complement large-scale investments in transport infrastructure in the GMS to facilitate greater economic connectivity. The CBTA consists of a Master Agreement with twenty annexes and protocols. The core text of the CBTA consolidates all of the key non-physical measures for efficient cross-border land transport. It is supported by annexes and protocols that detail arrangements for the movement of vehicles, traffic regulations and Customs regulations and processes. It is the master agreement between the GMS countries.

At the heart of the CBTA is the plan for the free movement of vehicles between member countries. However, three of the Annexes (6, 8 and 14) are still to be ratified by Thailand. Otherwise, the CBTA has been signed and ratified by each of the six GMS countries. Domestic industry pressure is behind a full commitment to the CBTA in Thailand. Full implementation would give access for Lao and Vietnamese trucks, to the Laem Chabang container port, around 120 km from Bangkok. This would break the Thai trucking monopoly on carriage of import and export freight between the port and Lao PDR.

The lack of action by Thailand has reduced pressure on other countries to fully implement the CBTA. The closest existing cross-border arrangement to a CBTA operation is found between Lao PDR and Vietnam. Lao PDR and Vietnam have a bilateral agreement that was concluded under the general provisions of the CBTA and it seems to function well. Indeed, Vietnam is the only country which gives Lao trucks access to

¹⁵ Road damage from an overloaded axle increases to the power of 4. That means a 2 tons overweight axle causes damage of 16 times that caused by a compliant axle.

¹⁶ Road maintenance is financed through a fuel levy of 420 LAK per liter of diesel sold in Lao PDR. The fuel levy is collected from fuel importers. Foreign trucks who fill their tanks with cheaper and better foreign diesel before entering Lao PDR thus do not contribute.

its roads and which the Lao transport industry is prepared to use. As Lao operators improve the standards of their equipment, they are venturing further into Vietnam and cooperating more closely with Vietnamese forwarders and trucking operators.

Bilateral and Trilateral Agreements among GMS Countries

There are a number of bilateral and trilateral transportation agreements among neighboring countries in the GMS which have been negotiated outside the CBTA framework but respect CBTA principles. Even though the CBTA has not been fully implemented, it has established the parameters for bilateral and trilateral agreements where countries can use parts of the agreement as the basic framework. These agreements detail under what conditions trucks, coaches or cars may travel in the territory of the other country. While there are such agreements between many of the countries, the bilateral agreements between Lao PDR and Thailand, and between Lao PDR and Vietnam, are the most active. The trilateral agreement between Thailand, Lao PDR and Vietnam is established on the basis of the EWEC Transport Agreement and is hardly used.

Almost all relevant cross-border shipping issues have been covered in the CBTA, which allows bilateral and trilateral agreements among members to focus on local conditions that vary depending on location, to move forward with pilot projects, and to take into account domestic interests. Thus, even if not fully implemented, the CBTA has been successful in setting the ground rules for cross-border transport in the GMS and as a basis for developing a full ASEAN cross-border transport and transit system.

In February 2013, Thailand, Lao PDR and Vietnam signed an MoU to amend Protocol 1 of the CBTA. The result was that the EWEC has been extended to include following corridors:

- Laem Chabang Port to Vientiane;
- Laem Chabang Port to Savanakheth, to Lao Bao, to Hanoi via the Ho Chi Minh Trail and to the port of Hai Phong

In August 2010, Thailand, Lao PDR, and China negotiated an MoU on traffic rights which would allow vehicles from each country to operate throughout the NSEC between Kunming and Bangkok. As part of these negotiations each of the three countries, thus including Lao PDR, would be allocated 100 permits for international operations in the first year, increasing by a further 100 each year. Because Lao PDR currently lacks the capacity to use these permits they have not yet agreed to implement the agreement. Trilateral discussions are ongoing.

Appendix IV: ASEAN Custom Transit System (ACTS)

In 1998, ASEAN adopted the AFAFGIT. The AFAFGIT Protocol 7 is the ACTS, which was agreed to by member countries in 2007. The ACTS is a system of transit transport under Customs control to facilitate the movement of goods across the territory of one or more contracting parties. The ACTS is very similar to Annex 6 of the CBTA.

- (i) It is designed to be fully computerized with electronic messaging between the operators and Customs for lodgment and discharge of transit declarations. The exchange of data between Customs authorities and visibility of all movements in transit between Customs offices en route will be available in real time.
- (ii) The operators of the system can include authorized traders as well as Customs brokers, forwarders and transport operators.
- (iii) The traders and operators who meet the criteria are recognized as AEOs and, as such, are granted certain freedoms and simplifications to speed up and encourage the use of ACTS.
- (iv) The system is designed to require only one guarantee valid in all countries to cover the cargo through the entire journey, regardless of the number of transit countries. The guarantor must be from the financial sector and be approved by Customs in that country. The guarantee must be sufficient to cover the total of all the potential duties and taxes payable in the event of default.
- (v) There should be only one single regional Customs document for transit.

ACTS has been designed with close reference to the EU-NTCS and adapted to reflect realities in the ASEAN region. ACTS does not attempt to cover the vehicle or trailer. These are covered under the separate AFAFGIT Protocol 5.

The core of ACTS is an integrated IT system and database along the lines of the European Union's NCTS system. It has been recognized by ASEAN that the ACTS IT will require significant upgrades to the current Customs systems of Lao PDR, Cambodia, Myanmar and, to a lesser extent, Vietnam. With this in mind, ASEAN plans to implement ACTS in phases, starting with two pilot projects:

- Phase 1: A pilot in 2016 on the North-South corridor between Thailand, Malaysia and Singapore; and
- Phase 2: The East-West Corridor between Thailand and Vietnam through Lao PDR.

To build a backbone IT system which links all ASEAN countries, the members states are planning to set up a Central Management Team (CMT) to support ACTS over time. This could be based in either Thailand or Malaysia, who have both offered to provide facilities to house the CMT.

Although in concept the ACTS will have many advantages, in practice it will be quite expensive to develop the required IT capabilities throughout all member countries. The system is very similar to the EU-NCTS system, and the EU provides assistance to support these efforts - an EU assistance unit is already working with the ASEAN Secretariat. Note, however, that the costs for the CLMV countries will become

less daunting as these countries develop their own modern computerized Customs systems. In the case of Lao PDR, they are implementing the *ASYCUDA World* system.

The Mutual recognition of AEOs in ASEAN is known to be of concern in some countries. Having a non-resident company able to offer an indirect Customs transit guarantee to Customs in another country surrenders control of the process in the transit country. Lao PDR has signed, but it may become reluctant to implement if the Lao Ministry of Public Works and Transport and LIFFA members see it as leading to more foreign trucks to operate across Lao PDR without benefit to the Lao economy.

Appendix V: The Transport & Logistics Industries in Neighboring Countries

Lao PDR is a key transit route to many of the other GMS and ASEAN countries. As previously described it is the gateway to the Northern route to China and the key transit route between Thailand and Vietnam and Southern China. Other routes exist via Myanmar and Cambodia, but they will not be useable due to political instability. However, the upcoming AEC in 2015 will further increase competition. Therefore the transport and logistics capacity of Lao PDR must be compared with surrounding countries.

Thailand

The World Bank Logistic Performance Index ranks Thailand in 38th place but of more note is that it is ranked 3rd in Southeast Asia behind Singapore (1), and more comparable Malaysia (29). Moreover, the Thai National Economic and Social Development Board (NESDB) estimates the transport and logistics industry to be worth around 870 billion THB (21.75 billion EUR) to the Thai economy annually. They estimate that 14.5% of GDP came from the sector in 2011. Their estimate for the narrower transportation-only sector is 7.2% or just under 10 billion EUR. As 84% of all freight and 74% of all passengers move by road, the road transport sector is very important to the Thai economy. The contribution to GDP has actually fallen in percentage terms over the past decade as competition and streamlining procedures led to savings while other sectors expanded.

The Department of Land Transport reported that in 2011 there were 732 Thai transport companies involved in international transport and active on the Thai-Lao route. Of these, 259 were based in the North east and concentrated on the Lao PDR route. 112 were based in the central region of Thailand and 213 were reported to be based around Bangkok. 80% of the cross-border trade with Lao (including transit) was handled by Thai-based transport or logistics companies. Whilst the involvement of all 732 trucking companies on the Thai- Lao route is hard to verify, and the actual number of active participants is probably lower, the involvement of that number of trucking companies in cross-border trade on any route shows how strong the Thai road freight industry is.

More than 60% of the Thai GDP comes from international trade (World Bank, 2014). Exports leave Thailand via two major sea ports and 11 major land crossings to neighboring countries. Of these land crossings 5 are major borders with Lao PDR. Air freight exports go through Bangkok or Chiang Mai.

The Department of Land Transport data from 2010 shows that there were 3,813 registered truck operators in Thailand. They accounted for about 150,000 truck registrations. However, there were another 620,000 trucks registered for private use (not hire and reward). The sector is highly competitive and price-driven. There is a distinct two-tier system for freight transport.

40 years ago, the Thai trucking industry faced similar challenges such as an outdated trucking fleet, low profit margins, and under-utilization of their fleet due to seasonal transport of agricultural products. With the industrialization of the 1970s/1980s, fuelled by the inflow of foreign direct investment, the transport market changed. The newly set-up factories offered year-round business and growing international trade led to ever-increasing volumes. But the new customers had new requirements. These included for example:

- Modern and standard specification trucks;
- Specialized vehicles i.e. tanker trucks, container chassis, car carriers, refrigerated and van-trucks;
- 30-60 days credit after transport;
- liability for losses of their high-value cargo during transport;
- Operations at the highest legal weight limits without tolerance for overloading; and
- High levels of safety, security, and en-route visibility including total punctuality.

But those factories offered an attractive transport rate. The transport costs, as a percentage of total production costs, were relatively low. Thus they were prepared to pay high rates to contractors that were able to meet their required standards.

With the development of Thailand's industry and integration into production networks, shippers demanded integrated logistics systems linking their factories with suppliers and customers to ensure just-in-time flows of goods and low inventory. These supply chains function only with adequate logistics services. As the local trucking industry was not able to deliver such sophisticated services, manufacturers turned to large, foreign-managed 3-PLs who had experience with such sophisticated supply chains. Consequently, logistics service providers such as shipping lines and freight forwarders set-up operations in Thailand acting as lead logistics providers.

These companies were constrained from operating large fleets of their own trucks both by government regulation and their "asset-light" policies. Therefore, they sought out and developed local trucking companies who were prepared to invest in good equipment and adopt international best practice. The foreign 3-PLs provided the necessary management systems, cash-flow, and liability coverage, the local trucking firms had to invest both in "hardware and software" to meet the same standards as set by the manufacturer and passed on to Thai subcontractors by the lead logistics providers.

Complying with those standards incurs higher costs thus the rates paid to those trucking firms are higher than in conventional trucking. Operations of well-managed companies in this sector are profitable. In this segment, transport companies generally report that the only constraints on further profitable growth are

- The availability of top-class drivers, and
- Management time

Eventually, subcontracted, local trucking firms were able to learn from 3-PLs how to comply with the required standards in international production networks. The experience from Thailand shows, that learning and adopting from multinationals enabled some local firms to develop from a dependent subcontractor to an independent competitor for service contracts. Other companies serving multinationals decided that it was overall better to remain a subcontractor and not deal with all the requirements. They were technically able to compete but would have had problems meeting the commercial conditions of the factories, such as very long payment terms, very high "goods-in-transit" liability conditions, or the very demanding rules on compliance to various international conventions.

Today the Thai 3PLmarket is very segmented and can be divided by

- Product, i.e. Air and/or ocean freight, Customs brokerage, Customs logistics, physical distribution, contract trucking, warehousing, courier services, etc.;
- Customer type, i.e. targeting MNCs or SMEs;
- Size, i.e. from 10 to 2,000 employees, with a consequent limit on the size of contract they can handle; and
- Nationality, i.e. most Japanese MNCs work with Japanese 3PLs and only few Thai customers work with foreign 3PL.

But not every local trucking company was able to upgrade, and not every company wanted to, as funding was not equally available to every operator to make such an investment. In addition, there are also significant risks (e.g. high investments) involved. For the companies that did not want to upgrade, there was still a large market. Traditional/conventional cargo such as construction material, agricultural products, low-value consumer products, etc. is still carried by those transporters today. The traditional markets are less demanding and the investment required is much lower. Margins are, however, significantly lower.

Consequently, today in Thailand two segments exist in parallel within the trucking industry. Whilst the truckers operating for multinational clients experience high margins, high demand, and high requirements in terms of management and equipment, low-spec trucking companies continue to exist. In this segment, transport operators have on average older vehicles and lower profit margins with highly volatile demand. Yet, this segment is also an integral part of the Thai logistics industry as it provides a low-cost transport option for low-value goods (for which the other segment would be too expensive) (Ksoll & Quarmby, *Private Sector Views on Road Transport along the Yangon – Mandalay – Muse/Ruili – Kunming Corridor*, 2013).

Vietnam

The transport sector in Vietnam has developed rapidly over recent years. The rapid development of foreign investments in manufacturing facilities has provided considerable business opportunities for transport and logistics companies. While the logistics expansion has been led by multi-national logistics service providers coming in to service their existing client base. The road transport industry has been developed by local companies, some of which have been privatized from former SOEs.

According to the Vietnamese Ministry of Transport, there were 707,345 good vehicles registered as of May 2014. As of March 2014, there were 2,681 companies and 586 co-operatives registered to operate road transport in Vietnam (Directorate of Roads, 2014).

Logistics development in Vietnam has been fueled largely by Japanese 3PL. The establishment of factories by Honda, Yamaha, Toyota, Canon, Epson and numerous other Japanese manufacturing and high-tech companies could not be supported by existing logistics companies. Local Vietnamese logistics providers were geared toward heavy Soviet-style manufacturing with high volume and low quality. The Japanese and other support companies required time-definite and high quality operations, so they had to encourage their existing service providers to follow them into Vietnam. Japanese logistics firms such as

NYK, Yusen, KWE, Sagawa, Sumitomo, Logitem, Nippon Express and others have followed and opened local establishments in Vietnam to service their major corporate clients.

Vietnam does have a rail system with some 2,600 kilometers of mainly meter-gauge track running the length of the country. However, the transit time for freight is uncertain as most of the line is single track and the freight trains have to give way to passenger trains on their two day journey. Even when they are moving, the average speed is below 40 km/h due to the poor standard of the track bed and because time was never an issue in freight transport under the Soviet-style system. Vietnam also has a long coastline and over 80 local ports. There are in excess of 1,000 coastal vessels in operation with a further 80,000 river vessels carrying freight (Representative, Ministry of Public Works and Transport, 2014). These coastal and river vessels tend to move rice, coal, sand, stone, cement, steel and other industrial inputs. Consumer goods, high-tech products and food are transported by road.

The rapid expansion of road freight and trucking has led to considerable problems with the country's roads. There are no motorways in Vietnam and most trucks have to use National Highway #1 for their North-South journeys. The road is heavily congested and overloaded vehicles have led to some very bad sections where the average speed of trucks is reduced to below 20 km/h. The road also runs through most towns en-route, with few bypasses having been built. The result is a long dangerous journey for trucks and coaches with a high rate of accidents and casualties.

The expansion of the freight industry was made possible in part by the ability to import cheap second-hand American trucks from the USA. The trucking industry has been dominated for many years by imported International Harvester brand trucks which came to Vietnam after their first life of 6-7 years operating in the US trucking industry. In many cases the trucks still display the livery of their US operators. Many of the Vietnamese operators were actually first generation Americans who had gone to the US after the war and been raised in America. They returned to Vietnam and established transport operations using second-hand imported American trucks. The domination of the International Harvester brand has now been greatly reduced, Peterbilt trucks now seem to be the most popular brand. This was partially also due to the Vietnamese government banning the import of second-hand trucks over 10 years old and trying to raise the standards.

The influx of these American trucks has meant that the Vietnamese market is dominated by semi-trailer operations. The only draw – bar configurations are old Kamaz trucks left over from the Soviet era. The smaller trucks are often secondhand Korean or Japanese with many new Chinese small trucks becoming evident in the market. However, the long-distance trucks are almost exclusively tractor-trailer trucks. This makes them ideal for international operations as they can carry FEU (or 45 ft) containers which are the mainstay of cross-border freight operations in the GMS.

Vietnamese trucks are heavily involved in the Thailand – China trade. They are able to run to Savanaket in Lao PDR and to the border with China at Lang Son/Pingxiang. All of the high-tech freight movements between China and Thailand are carried at least 40% of the way on a Vietnamese trucks. A bilateral agreement between Vietnam and China has recently come into operation. Some Vietnamese are already allowed through to Guangzhou and Shenzhen under the permit exchange and a much larger number of

Chinese trucks run through to Hanoi (the trade balance is very much in favor of China). Vietnamese trucks are commonly delivering cargo from China all the way to Vientiane and are dominating route #12 via Nhon Cai through to Tha Khek and Savanaket. They are also actively looking at the Northern route through Lao PDR that connects Hanoi and Luang Namtha and on via Route #17 to the border with Myanmar. Once the bridge from Lao PDR to Myanmar is finished, Vietnamese operators expect to deliver loads up to the Myanmar border.

However, they do not yet have a high level of quality. Overloading vehicles is not seen as an issue since they are getting paid by the ton. Informal payments, especially for trivial offences are common and accepted by operators. Pressure from customers is leading to improvements, and those truckers who are able to raise their standards are in high demand.

The flow of fresh fruit and vegetables from South Vietnamese provinces 2000 km from the border into Yuiguan/Pingxiang has increased to around 200 refer trucks per day. There are plans to supply a new produce market that is presently being built in Nanning, approximately 200 km from the Chinese/Vietnamese border.

Cambodia

The transport sector in Cambodia accounts for 7.6% of GDP in 2103. However, this is only reference to the transport sector rather than the wider logistics sector (van Es, 2010). The industry is dominated by five companies who operate their own bonded warehouses and transport fleets. It is almost impossible to operate without using one of these companies. They have all established the necessary relationships both within and outside government to guarantee smooth transport operations. Their vehicle fleets appear to be one of oldest to be found in the GMS and beyond. Many are 30 years old and require extensive maintenance and repairs. Freight rates in Cambodia are high due to the limited competitive environment. To date, only one major Singaporean transport company has set up an ICD for Maersk in Phnom Penh. However, they have not managed to penetrate the open market and concentrate on haulage of sea freight containers to and from Sihanoukville.

Due to the difficult local business and trading environment, particularly dealing with government agencies involved in cross-border trade, some foreign companies have given up and closed down their operation. They could not operate according to their corporate standards whilst remaining competitive. Presently, most foreign forwarders operate via local agents who smooth the path. There is no use of electronic documents and hard copies are required in the border process. Hard copies are also required by provincial Customs to allow the trucks to pass through on route to Phnom Penh.

Vietnamese and Thai trucks are allowed to cross the border and run to Phnom Penh. However, the operators view the situation as too difficult and very few have taken up their permit allocations. Even Vietnamese transport companies, known as relatively resilient, are generally reluctant to transport cargoes between Phnom Penh and Ho Chi Minh City. Due to the generally poor state of the Cambodian trucks, there is little cross-border traffic : most containers are transferred at either the Bavet (Vietnam) or Poi Pet (Thailand) borders. Establishing the Bangkok - Phnom Penh - Ho Chi Minh City route for through

traffic is still a long way away from reality as it is easier, cheaper and quicker to go via Lao and use the EWEC into Vietnam and to Ho Chi Minh City rather than going through Cambodia.

Myanmar

The road transport industry in Myanmar is less relevant to Lao PDR than are the industries of the other GMS neighbors. The two countries do have a common border along the Mekong in the Northwest of Lao PDR but there is relatively little formal trade across that border and it is not, at present, a transit route. A bridge is planned across the Mekong between Ban Xiangkok in Luang Namtha province and Keng Lap in the Shan State of Myanmar. This could, in principle, open up the route to trade between Lao PDR and Myanmar and even to transit traffic between Vietnam and Myanmar. In the light of the low levels of Myanmar's formal trade with either Lao PDR or Vietnam and the isolation of the border crossing from any center of industry or population, the bridge and route are likely to be mostly of local importance (though that may be very significant in the local context).

Due to the very different geographical situation, little mutual trade and a very different recent history there may not be too much for Lao PDR to learn from a study of the Myanmar transport industry except for market capacity management and the unintended consequences of regulatory changes (see below).

Unlike Lao PDR, Myanmar has a robust and well organized trucking industry. However one which has suffered from massive under-investment during the decades of economic isolation of the country and is now struggling to adjust to the turbulence of the new economic order. The industry is represented by two groupings:

- (i) The Container Transport Association who represent the drayage operators from the ports and some other larger operators using articulated semi-trailers on long-distance operations; and
- (ii) The Highway Freight Transport Association (HFTA) who represents hundreds of small operators, many with less than five trucks and owner-operators. They have 320 member companies in Yangon and over 200 in Mandalay. Their trucks are predominately second-hand rigid vehicles from Japan (10 or 12 wheelers) (Ksoll & Quarmby, *Private Sector Views on Road Transport along the Yangon – Mandalay – Muse/Ruili – Kunming Corridor*, 2013).

Membership is not obligatory, not all trucking companies are members of these two associations and in particular many SOEs run their own large fleets which are not included.

The HFTA operators form themselves into transport 'Gates'. In each city there is a Gate for each major city leading in/out. The Gate acts as a co-operative and loads are shared between members including empty trucks waiting to return to their home base. They are also used as consolidation points for LCL cargo to provincial cities. Their facilities are commercially efficient but are very informal and would be unacceptable to international customers - they are mostly engaged in the transport of agricultural products, consumer goods and spare parts. Their markets are seasonal and for at least the last 15 years have been in secular decline. Rates are ad-hoc and, except in peak seasons, based on variable costs only. There are no recognized terms of trade, no insurance other than third party on the trucks, no standard truck sizes or types.

The Container Transport Association is based primarily in Yangon and has the advantage of being established later, thus owning a fleet of larger, more modern and efficient trucks. They have been experiencing a profitable and growing market over the last few years as containerization grew in Myanmar. The major freight transport artery in the country has always been the route between Yangon and Mandalay and the major international transport route the extension of that road Northwards to the border with Yunnan at the border crossing point Muse–Ruili.

The road infrastructure in Myanmar is mostly well below regional standards. The basic network has not been improved since independence in 1962 although the total size of the network has increased significantly, especially in outlying and border areas. There is a concrete motorway-style highway (Route #1) from Yangon via Nay Pyi Thaw to Mandalay but this is closed to truck traffic. Private sector trucks are required to use the old Route #AH14 which is a two-lane road from colonial times running through every village en route. Although the maximum GVW for a semi-trailer in Myanmar is 50 tons many of the old military girder bridges on the road are rated at maximum 13 tons.

The route Yangon to Mandalay (750 km) is run at an average of 40 km/h and a round trip is 4-5 days. North beyond Mandalay the road is in even worse condition despite ongoing maintenance work. Average speed for a 50 ton GVW truck is 25 km/h on the 450 km route. At the most difficult sections such as the Kraing gorge trucks are moving at walking pace on a disintegrating road surface round hairpin bends. Despite these obstacles traffic on the route is heavy.

Depending on the season 1,000-1,500 heavy trucks arrive per day at or leave the 105 miles depot just South of Muse near the border. This is the major Customs checkpoint for the Chinese border just 30 km further North. Myanmar trucks are allowed to go in China but only into Jaigo/Ruili city on the border and, with a few exceptions such as the transporters of seafood, no Chinese truck enters Myanmar. Most of the Myanmar export cargo is agricultural goods, melons, mangoes, maize, vegetables, often part of contract farming, but also seafood and meat. Imports from China include some temperate fruit and vegetables but mostly consumer goods and machinery.

It is noteworthy that final destination for the fruit and vegetables is usually Kunming but that, in stark contrast to the parallel traffic between Thailand and Kunming, the Myanmar traffic is neither climate-controlled nor containerized. There are significant asymmetric trades on the Muse/Ruili border in rice, fertilizer and other commodities where the trade is legal only on one side of the border and thus recorded only on one side.

The route from Myanmar to Thailand via Mowlamyen, Myawadee and Mae Sod is much less significant in volume terms, mostly due to the very bad state of the road to Myawadee on the Myanmar side. This road is so steep, so narrow and in such a bad condition that trucks can drive only in one direction on any one day. The direction of the traffic alternates. For this reason no container traffic exists across the border, no container-chassis can pass. A new bridge across the river at Mae Sod and a new road from Myawadee to Kaukereik on the road to Mowlamyen are at present being planned and/or built by the Thai government.

The road transport industry in Myanmar has been hit hard by recent changes to import regulations for commercial vehicles. Until 2011, issuance of the licenses needed to import a truck was very restricted, they were usually available only to the well-connected who re-sold them, and in any case the import duty was set at 100%. To keep the final landed price within reason importers had a strong preference for importing used trucks from Japan. These were always well maintained and sold at written down prices to reflect their 6-7 years of age. In a declining market freight rates were insufficient to allow for depreciation even of these low-cost units.

In 2011 the Myanmar Government was advised to reduce import tariffs and issue far more import licenses for (among other categories) commercial trucks. The intention was to ease upward pressure on the Kyat and simultaneously open up new investment possibilities in an industry suffering from under-investment. Unfortunately existing operators did not have the cash to buy new trucks and their fleets, which, having overnight lost 80% of their resale value, were of no use as collateral for loans. So the new licenses were taken up by new market-entrants buying new Chinese trucks at only US\$ 60,000-75,000 (net) with only 10% import duty and finance. As these trucks were not replacing existing fleets the new vehicles flooded the market with capacity and left the legacy carriers with older, inefficient vehicles chasing less traffic and competing with operators of newer trucks with a lower cost-base. The legacy operators now have neither saleable assets nor competitive prices.

China

The transport and logistics industry in China has little relevance to Lao PDR except at the border points. The logistics industry is huge and it is reported to contribute 17% of GDP in 2010, including transport and warehousing (A.T. Kearney, 2010)

Rail transport is heavily used and far more popular than in other neighboring countries as long-distance trucking has largely only developed over the past decade. This development has been fueled by a rapid increase in trade with neighboring countries where there is no sea or rail option. GMS countries share five major borders crossings with China:

- Myanmar: Ruili/Muse
- Lao PDR: Mohan/Boten
- Vietnam: Pingxiang/Lang Son
- Vietnam: Dongxing
- Vietnam: Hekou/Lao Cai

Although the transport sector in China is extremely large, especially compared to other GMS countries, it is of relatively low quality. Old vehicles are still common in China despite the introduction of vehicles built under joint venture agreements with European manufactures or directly imported vehicles. While the design of Chinese tractor units is on par with European competitors, their fuel efficiency and reliability does not meet modern standards. The influence of Hong Kong can be seen in the Pearl River Delta area with new and better vehicles being operated to meet the demands of multi-national customers. This effect is also being seen in the high tech manufacturing areas of Shanghai and Suzhou, but they are still

the minority. There is generally little innovation in the transport sector with firms continuing to operate their traditional ways. Hence, those firms can generally not contribute to the development of new solutions to logistical problems. Chinese transport companies are eager to learn by doing, and hence sometimes committing beyond their capabilities.

Chinese Logistics and trucking companies do not actively seek work or try to sell themselves to customers. They tend to rely on their network and relationships with customers. They offer flat rates for their service and tend to avoid negotiations with newcomers. There are few long-distance operators in Guaxgi or Yunnan provinces.

The traffic to and from the border with Vietnam is dominated by operators from the Pearl River delta, while the operators in Yunnan tend to prefer the trade with Myanmar as there is easy two-way traffic to and from the Ruili/Muse border.

There is considerable industrial equipment entering Lao at Mohan/Boten as well as transit traffic to Thailand via the NSEC. Only the reefer operators seem prepared to venture far into Lao as they have no local operator who they could cooperate with.

Appendix VI: Key extracts from CBTA annex 9

Article 9: Criteria for Licensing of Transport Operators for Cross-Border Transport Operations

Article 1: Introduction

Transport Operators who perform international transport operations shall fulfill all conditions laid down in this Annex.

Article 2: Basic Eligibility

- (a) Transport Operators shall be licensed by their Home Country to perform international transport operations provided they meet the minimum conditions set out in Articles 3, 4, 5, and 6 of this Annex.
- (b) If the Transport Operator is not a physical but a legal person or if the owner of the transport enterprise does not fulfill the conditions himself/herself, the person who is in charge of the permanent and effective management of the enterprise must fulfill the conditions with respect to reliability and professional competence.
- (c) A Transport Operator that no longer meets the requirements shall be divested of his/her license.

Article 3: Substantial Ownership by National Citizens

The transport operation enterprise shall comply with the following requirements:

- (a) More than half of the transport operation enterprise's capital must be owned by national citizens of the Home Country.
- (b) The enterprise must also be directed by a majority of national citizens of the Home Country.

Article 4: Reliability

The Transport Operator must not have been:

- (a) convicted for serious breaches of relevant laws or regulations of the Home Country; or
- (b) divested from the capacity to exercise the profession of road carrier as a sanction for breach of applicable laws or regulations in the field of road carriage; or
- (c) declared bankrupt unless the rights, competency, privileges, or financial solvency of the Transport Operator have been restored or rehabilitated, as appropriate, according to the laws or regulations of the Home Country of the Transport Operator.

Article 5: Professional Competence

Article 9: Criteria for Licensing of Transport Operators for Cross-Border Transport Operations

- (a) legal matters relevant to the road transport business (e.g., contracts, carrier liability, company law, accounting law, labor law, tax law);
- (b) transport operation management (e.g., cost and price calculation, payment and financing methods, price regulation, insurance, transport intermediaries, management techniques, marketing);
- (c) conditions and requirements on access to the market, if any (e.g., access to the profession, transport documents, fair competition/anti-dumping);
- (d) technical matters relating to transport operations (e.g., sizes and weights of vehicles, choice of vehicle, maintenance of the vehicle, loading and unloading of the vehicle, carriage of dangerous and perishable goods, principles of environmental protection in road traffic); and
- (e) road safety (e.g., rules of the road, traffic accident prevention and mitigation).

Article 6: Financial Solvency

- (a) The Transport Operator shall own sufficient financial means to guarantee the proper functioning and management of the transport operation enterprise.
- (b) For the purpose of assessing the Transport Operator's solvency, the following elements may be taken into account: the Transport Operator's balance sheet, assets, bank account credit, capacity to obtain loans, bank guarantees obtained, and liability insurance cover.
- (c) The Transport Operator must carry insurance covering the Operator's contractual liability.

Annex VII: ASEAN Framework Agreement on the Facilitation of Goods in Transit

There follows some of the relevant Articles from the AFAFGIT that are relevant this report.

Article 1
Objectives

The objectives of this Agreement are :

- a. to facilitate transportation of goods in transit, to support the implementation of the ASEAN Free Trade Area, and to further integrate the region's economies;
- b. to simplify and harmonize transport, trade and Customs regulations and requirements for the purpose of facilitation of goods in transit; and
- c. to establish an effective, efficient, integrated and harmonized transit transport system in ASEAN.

Article 2
Principles

The Contracting Parties shall be guided by the following principles under this Agreement :

- a. Most Favoured Nation Treatment : Contracting Parties shall accord to transit transport to or from the territory of any other Contracting Parties treatment no less favourable than the treatment accorded to transit transport to or from any other country;
- b. National Treatment : Contracting Parties shall accord to products which have been in transit through the territory of any other Contracting Party treatment no less favourable than that which would have been accorded to such products had they been transported from their place of origin to their destination without going through the territory of such other Contracting Party;

Article 5
Grant of Rights

1. Subject to the provisions of this Agreement, each Contracting Party shall grant to other Contracting Parties :
 - a. the right of transit transport; and
 - b. the right to load and discharge third countries' goods destined for or coming from Contracting Parties.
2. The Contracting Parties, through whose territory the transit transport takes place, will endeavour to provide facilities for transit transport in accordance with the provisions of this Agreement.
3. Transit Transport shall not be subject to any unnecessary delays or restrictions and shall be exempt from Customs duties, taxes and other charges except charges for specific services rendered in connection with such transport.
4. Goods carried in sealed road vehicles, combination of vehicles or container shall not be subjected to examination at Customs offices en route. However, to prevent abuses such as smuggling and fraud, Customs authorities of either Contracting Party, may in exceptional cases, and particularly when irregularity is suspected, carry out an examination of the goods at such offices or other areas designated by Customs authorities.

Article 9
Transit Transport Services

1. Each Contracting Party shall allow the use of means of transport registered in other Contracting Parties to provide transit transport services on its territory in accordance with Article 5 of this Agreement.
2. The type and quantity of road vehicles to be used for transit transport shall be agreed upon between all Contracting Parties, to be specified in Protocol 3, before the transport services are inaugurated. Thereafter, the type and quantity of road vehicles shall be discussed from time to time between the Contracting Parties.

Article 18
Establishment of a Customs Transit System

1. The Contracting Parties shall establish a Customs transit system for the purposes of facilitating the movement of goods in their territories.
2. The Contracting Parties agree to apply the Customs transit system to be specified in Protocol 7.

Article 24
Domestic Legislation

1. Domestic legislation and regulations relating to transport of goods shall, in so far as this Agreement and its Protocols do not lay down, apply equally and without discrimination to transit transport.
2. The Contracting Parties endeavour to harmonize and simplify their rules, regulations and administrative procedures relating to transit transport in accordance with the provisions of this Agreement.

Article 26
Compliance with National Laws

Except where otherwise provided in Agreements between the Contracting Parties, including this Agreement:

- a. means of transport of one Contracting Party including persons and goods shall, when in the territory of the other Contracting Party, comply with national laws and regulations in force in that territory ; and
- b. neither of the Parties shall impose on persons or goods of the other Contracting Party requirements which are more restrictive than those applied by its national laws and regulations on its own means of transport.

Annex VIII: Professional Standards in Transport

The following is taken from a World Bank commissioned report on raising transport standards in developing countries. The GMS Freight Transport Association (FRETA) is based on this principle and attempts to work with transport operators and industry bodies to achieve better standards. FRETA is restricted by resources and the lack of awareness by local operators and associations of the problem.

Professional Standards

1. Introduction

Increasingly attempts are being made to encourage the trucking industries of developing countries to establish means of accreditation which can be used by qualifying operators to indicate to potential customers their ability to offer better quality services. A successful self-enforcing approach of this kind can increase the creditworthiness of operators to financing institutions by reducing investment risk --a vital consideration when the trucking industry is widely regarded as a high risk business-- and provides the practical basis in the longer term for incorporating effective professional standards into operator licensing and gaining support in the industry for enforcement efforts.

2. Approach to Accreditation

Accreditation involves setting standards of professional competence for those people involved in managing transport operations. This does not mean that owners of transport companies need to qualify, only the managers employed to carry out overall management duties. It covers basic knowledge of all aspects of running a transport undertaking:

- transport and business law
- business and financial management
- technical standards and operating practices,
- licensing,
- road safety
- international aspects (for operators engaged in international transport).

One approach to achieving professional standards would be to focus on regulatory tools such as operator licensing, which could include professional requirements in license conditions. However this does nothing, in itself, to raise standards: if rigorously enforced it would result in barring most operators from continuing in business. In practice institutional constraints would make enforcement ineffective and so little would be achieved.

An alternative approach is to focus on encouraging transport operators to set their own professional standards. Even without supporting regulatory measures there are strong incentives for operators to achieve these professional standards, because it would help them to

- market their services more effectively to customers who want high quality services,
- increase their access to credit by improving their creditworthiness.

It is likely to take many years to raise professional standards, and transport operators will have to set out a long-term strategy for achieving this plus an achievable implementation plan to make the first steps. Account will have to be taken of the existing situation in the transport industry and allow experienced managers, or ones with a similar qualification in a transport institute, a different route to qualification compared to completely new unqualified managers. The method of examinations should also take account of literacy skills and allow managers with years of experience but limited writing ability to undergo oral examinations.

Once professional standards have been established by the transport industry, it is much easier for these standards to be incorporated into operator license conditions if this can help set minimum safety standards for the whole industry.

The steps required to implement this approach include:

- 1) The transport industry and government should debate the need for improved professionalism and determine the skills gap. A first step would be to organize regional workshops for government to present policy initiatives and to invite feed-back.
- 2) Transport operators and freight forwarders should consider forming one or more associations who can represent their interests at government level more effectively than as a group of individual operators. (A model minutes of association are included below, which would give direction and ensure that the association represents the interests of members.)
- 3) The government should seek external assistance (finance and advice) to establish transport associations and support for training.
- 4) The associations take responsibility for defining standards and for providing industry-specific training. (An outline of the curriculum for management training is given below.)
- 5) The associations should affiliate with similar organizations in other more developed countries to gain information and advice on defining standards and setting up training and examination schemes. (In some cases there will be a federation of transport associations that can coordinate assistance, especially over defining standards of accreditation.)
- 6) The government should take responsibility for any basic educational matters that are involved in increasing professional standards. (e.g. Literacy standards may be low in some countries.)
- 7) The public and transport customers should be made aware of the professionalism goals of the transport industry and highlight those operators seeking or achieving higher professional standards (e.g. through the operators publishing a code of conduct).
- 8) In the case of the informal transport sector, it is unlikely that a high proportion of the operators would consider obtaining accreditation. For these people, short-term courses in practical management skills and simple tools are required and these could be organized by the transport association.
- 9) The government and transport industry should maintain regular dialogue, perhaps through round-table meetings, to discuss transport issues and policy developments.
- 10) When entering into international transport agreements, consideration should be given to adopting common standards for training, regulation, competency, data collection and enforcement.

11) The government should enter into a memorandum of understanding which requires relevant government agencies to consult with representatives of the transport industry before making legal or policy changes that might impact significantly on the industry.

3. Model Codes of Conduct for Road Transport Operators

One way for operator associations to promote higher professional standards is to define codes of conduct which must be observed by its members. Under this approach, truck and bus operators would sign up to observing certain rules of behavior such as:

- 1) Planning operations to ensure legal, safety and environmental obligations,
- 2) monitor drivers' compliance with the code,
- 3) train drivers beyond the legal minimum,
- 4) ensure that vehicles are safe, well maintained and clean,
- 5) respect other road users and pedestrians,
- 6) require contractors and sub-contractors to follow the code,
- 7) respond in writing to complaints.

Significant failure by operators to operate in accordance with these rules could lead to their suspension from the association.

4. Professional Training Needs

The following syllabus outline covers, in general terms, the main topics to be covered in professional accreditation training courses. Clearly the final choice of topics depends on local circumstances such as the form of legal framework and particular problems faced by operators. In particular specialised training is required for international operations.

Since people taking the course will be in full-time employment, the course would have to be modular and allow the topics to be covered over a long period of time. The course could be offered by training institutes, perhaps with international assistance from foreign organizations such as the Chartered Institute of Transport, transport associations or educational/training institutes.

Subject Area Topics Covered

- Road Transport Legislation
- Road Transport Management
- Vehicle Engineering Management

Each topic would consist of as many as 10 subjects cumulating in certification in that topic.

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