

Lao PDR Trade and Transport Facilitation Assessment

Poverty Reduction and Economic Management Sector Department
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Abbreviations and Acronyms

3PL	Third Party Logistics Provider
ACP	Africa, Caribbean and Pacific
ADB	Asian Development Bank
AFAFGT	ASEAN Framework Agreement for the Facilitation of Goods in Transit
AFD	Agence Francaise de Développement
AFTA	ASEAN Free Trade Area
ALGI	Association of Lao Garment Industries
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated SYstem for CUstoms DATA
B2C	Business to Customer
CAD	Cash Against Delivery
CAS	Country Assistance Strategy
CBTA	Greater Mekong Sub-Region Cross Border Transit Agreement
C&F	Cost and Freight
CF	Clearing and Forwarding
CM (or FOB1)	Contact Manufacturer
CMT	Cut, Make, Trim
CO	Certificate of Origin
DoA	Department of Agriculture
DTIS	Diagnostic Trade Integration Study
DWT	Deadweight tons
EBA	Everything-but-Arms Initiative
EDI	Electronic Data Interchange
ERP	Enterprise Resource Platform
EU	European Union
EWEC	East West Economic Corridor
FAO	Food and Agriculture Organization of the United Nations
FAQ	Fair Average Quality
FCA	Free Carrier
FCL	Full Container Load
FDI	Foreign Direct Investment
FEU	Forty Foot Equivalent Unit
FIATA	Fédération Internationale des Associations de Transitaires et Assimilés (International Federation of Freight Forwarders Associations)
FOB	Free on Board
GOL	Government of Lao PDR
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GMO	Genetically Modified Organism
GMS	Greater Mekong Sub-Region

GPS	Global Positioning System
GSC	Garment Service Center
GSP	Generalized System of Preferences
ICA	Investment Climate Assessment
ICD	Inland Container Depot
ICT	Information Communications Technology
IPM	Integrated Pest Management
IT	Information Technology
ITC	International Trade Centre
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
L/C	Letter of Credit
LCA	Lao PDR Coffee Association
LCL	Less than Container Load
LIFFA	Lao PDR International Freight Forwarders Association
LNCCI	Lao PDR National Chamber of Commerce and Industry
LPI	Logistics Performance Indicators
MAF	Ministry of Agriculture and Forestry
MOIC	Ministry Of Industry and Commerce
NGO	Non-Governmental Organization
NSCEI	National Steering Committee for Economic Integration
NSEC	North South Economic Corridor
NVOCC	Non-Vessel Operating Common Carriers
ODM (or FOB3)	Original Design Manufacturer
OEA	Original Equipment Assembler
OEM (or FOB2)	Original Equipment Manufacturer
SAFRC	Southern Agricultural and Forestry Center
SEZ	Special Economic Zone
SOCB	State-Owned Commercial Bank
SRT	State Railway of Thailand
TEU	Twenty Foot Equivalent Unit
TF	Trade Finance
TRS	Time Release Study
TT	Telegraphic Transfer
TTFA	Trade and Transport Facilitation Assessment
VAT	Value Added Tax
VF	Vendor Factory
WFP	World Food Program
WTO	World Trade Organization

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Executive summary

Trade

1. In Lao PDR, the value of trade has risen rapidly over the last decade with both imports and exports increasing by average annual rate of 24 percent. The value of merchandise trade accounts for about 60 percent of GDP, having increased from 10 percent two decades ago. Most of the trade is with its immediate neighbors. Thailand has accounted for about 60 percent of merchandise trade for the last decade (Figure 3) while China's portion has risen from 5 percent to 21 percent. Currently the principal commodities traded are bulk commodities (copper and other ores) and electricity with relatively simple logistics that generate little employment. In addition to these commodities, the other major exports are wood products, apparel, coffee and other agro products. These diversified tradable sectors have increased in value over the last decade, but their share of total exports (excluding the three bulk commodities) have declined over the last period from 42 percent to 32 percent for wood products and from 44 percent to 29 percent for apparel and footwear. On the other hand the share of coffee increased from 4 percent to 7 percent. Other agricultural exports increased their share from 3 percent to 21 percent.

2. Although Lao PDR is a landlocked country, it has very good connectivity to both its principal trading partners, Thailand and China, and to overseas markets and suppliers via the international gateways in Thailand. Connectivity has improved dramatically over the last decade through improvements in both transport and trade facilitation. Road and port infrastructure has been improved and capacity expanded. The competitiveness of the road transport services has increased. Border clearance procedures have been rationalized and simplified.

3. The costs for transporting cargo has declined significantly due to greater competition among Thai transporters, but remains high in comparison with similar developing countries due to the distance to the ports and the large proportion of empty backhauls. The main determinant of high costs is the high proportion of empty run-

ning of containers that results in a high cost equilibrium for cargo that is shipped to or from Laos. This differs from, for example, domestic cargo shipped to and from bordering areas of Thailand where cargo is rarely containerized and shippers are more able to secure backhauls. There is also the additional cost for consolidation of shipments, customs clearance and the transfer of some of the exports between vehicles at the Thai-Lao border. Nevertheless, the premium associated with moving goods across the border is small relative to the total cost of transport along the export supply chain.

4. The combination of improvements in transport, border clearance procedures and supply chain management have reduced the delivery times to and from the gateway ports to acceptable levels, given the distances involved. Exports can be containerized at the point of production, cleared, delivered in transit to the port and loaded on the vessel in as little as three days while imports can be unloaded from the vessel, cleared and delivered to the importer's warehouse in as little as four days.

Logistics Services

5. The development of services in the logistics sector in Lao PDR has been constrained by limited volume of trade. Individual consignments are typically small making consolidation an imperative to reduce costs. The main service providers are small enterprises that make limited use of modern information technology. Government restrictions combined with the size of the market have discouraged international logistics service providers from participating in the Lao market. In order to manage international shipments, importers and exporters are dependent on the logistics sectors of neighboring countries, especially Thailand. These countries provide not only line-haul land transport but also freight forwarding, consolidation and other third party services. They also act as intermediaries importing goods that are subsequently sold to Lao importers and purchasing Lao exports that are consolidated and re-exported. These intermediaries also add value to the traded goods.

Trucking

6. Since there is no significant rail or water transport services, road transport moves almost all of Lao PDR's international traffic. The principal routes are those connecting Vientiane, Savannakhet and Pakse with Bangkok and Laem Chabang seaports in Thailand. The transit times are reasonable with a truck completing a one-way trip in a day. Border crossing times are typically about one hour and the only significant delay occurs when inbound trucks arrive at night after the border has closed.

7. Containerized cargo is transported either in standardized containers that are stuffed/destuffed at the origin/destination in Vientiane, Savannakhet and Pakse or as loose cargo that is stuffed/destuffed primarily in Laem Chabang seaport. Since cross-border movements of trucks are no longer restricted, Thai trucking firms provide most of the transport services. These are larger, better organized firms that enjoy economies of scale from operating in Thailand. More importantly, over 95 percent of the length of the routes connecting the seaports and the origins/destinations in Lao PDR is within Thailand so that the trucks can carry domestic cargo on the return trip. In contrast, Lao trucking companies are small with older equipment and serve primarily short distance domestic movements.

8. Despite the obvious advantage of using Thai trucking for the port-door movement, Lao trucks continue to serve the domestic movements to/from the border where the boxes are transshipped to/from Thai trucks. This increases the total transport costs but not enough to offset the advantage of the availability of local transport. The cost for transport of containers remains high because of the large percentage of empty containers moving from the port for loading or returning to the port after unloading. The problem of empty container movements is a common challenge for origins/destinations located far from a port because of the shipping line logistics.

Forwarding

9. Most international shipments utilize separate freight forwarders for the land and overseas movements. The former are selected by either the consignee or shipper but for trade involving foreign-

owned companies or large foreign buyers, the forwarder is normally appointed by the foreign shipper/consignee or their designated international forwarder.

10. Although there are no restrictions on who can act as a freight forwarder, less than 25 domestic firms are registered with the Lao International Freight Forwarders and only a few international firms are present in the country. The latter have a limited role and must be represented through a joint venture or local agency. The demand for the services of freight forwarders is low because a significant portion of the shippers and consignee do not outsource activities such as storage, consolidation and inventory management.

11. Thai freight forwarders provide most of the forwarding services for the movement to/from the ports since they can offer economies of scale, a broader range of services and more sophisticated ICT systems. They also arrange a portion of the overseas movements through relationships with, or are part of, global companies.

Customs and clearing agents

12. Modernization of Lao PDR customs has been underway for a number of years and significant progress has been made in strengthening the organization and improving procedures. The introduction of the AYSCUDA system together with electronic filing of documents has reduced the time for clearance. The quality of the facilities at border crossings has also improved. The most modern is at Savannakhet, which has both a single stop service and dynamic axle load scale. The level of informal payments and special relationships between brokers and customs officials has been reduced. At present there are no professional requirements for becoming a customs agent other than a business license and registering with customs to connect to the electronic declaration system.

13. Procedures at the border typically take about an hour. The documentation for clearing cargo is prepared by the importer or his authorized agent. Most imports can be cleared at the border or the factory in the case of large consignees. However, a significant proportion of dutiable imports require a longer time for clearance and are transferred to the

Thanaleng bonded warehouses. For these cargoes, an average of 1-2 days is required to prepare the documents with an additional day for customs clearance procedures. However goods requiring technical certificates or import licenses, can require up to five days to complete the documentation.

Finance

14. Trade finance is a critical factor in the design of supply chains for both imports and exports. The three important components are access to foreign exchange, financial credit and guarantees. Availability to foreign exchange and financial credit is not a significant constraint. Most of the foreign trade involves foreign enterprises with access to international capital markets. Domestic enterprises can obtain foreign exchange through the commercial banks and authorized foreign exchange dealers. There are no restrictions on opening foreign exchange accounts.

15. Financial credit is important not only because it increases the available working capital and thus the volume of activity but also because it allows extension of the cash-to-cash cycle, thereby allowing greater the participation in global value chains and reducing the need for financial intermediaries in the supply chains. Both domestic and foreign banks offer financial credit. Although the variety of instruments is limited, so is the demand. For imports firms can obtain loans although the collateral requirements are relatively high. For exports, firms can discount the buyer's letter of credit by up to 80 percent of face value.

Selected exports

Coffee

16. Although coffee is a major export and output has more than doubled in the last decade, it accounts for only about ¼ percent of global trade in coffee. In terms of value, Lao PDR's exports are about 4 percent that of Vietnam. The exports have traditionally been an exporter of dry processed Robusta but the proportion of the more valuable wet processed Arabica has increased to where it now accounts for a third of the volume. The former trade relies primarily on small farms with production aggregated by village collectors and then wholesalers who

perform the milling. The latter trade relies on a mix of small and large farms where the large farms mill their own production and that of outgrowers. The exporters purchase the milled coffee and provide additional processing before selling it to international brokers, working primarily through local buying agents. Most of the trade is handled by 10 large exporters, but the largest handles only a few hundred containers a years.

17. The challenge is to convert this trade from a commodity sold to brokers into a product sold to retailers. This requires: (i) formalizing the relationship between producers and millers to ensure a reliable supply; (ii) introducing national standards, testing facilities and traceability systems to supplement the development of private brands; (iii) extending the role of exporters to include performing or contracting roasting and packaging; and, (iv) restructuring the supply chains to sell directly to retailers and a small but increasing amount of business-to-consumer sales. This transition has already begun through the initiative of some of the coffee plantations but government support will be required to expand this business model to a majority of the production.

Garments

18. The production of garments is an important source of exports and employment, but, the exports account for less than 0.1 percent of global trade and only about 2 percent that of Vietnam and 9 percent that of Thailand. The garments are made primarily from imported cotton and cotton blends with most of the textile and accessories originating in Thailand and East Asia. The garments are primarily men's clothing of low to medium value. The factories provide cut-make-trim services under contract to brand manufacturers or as vendor factories owned by Thai or other regional manufacturers. Both the sourcing of inputs and the sale of the products are managed by the foreign manufacturers/buyers. Most of the factories are small, meaning less than 500 employees, handling relatively small orders. A few large factories handle large orders and account for a significant portion of total employment.

19. **The principal challenge faced by the industry is to reduce the order cycle time and to increase value added.** Because any reduction in the delivery times from the factories to the Thai seaports will be small relative to the total order cycle, the principal option is to alter the sourcing of inputs. This would require development of clusters to encourage local production of inputs, in-bond storage and finishing of textiles.

Fruits and vegetables

20. **The production of fruits and vegetables for export is in its early stages of development but offers significant opportunities for generation of both income and employment.** The current trade includes both basic cross-border trade in fresh produce, and the export of specialty fruits and vegetables for overseas markets.¹ Production is based on a mix of small and medium sized farms supplying packinghouses that perform basic cleaning and sorting. A significant portion of the cross-border trade is with Thailand where the produce is distributed in local markets or supplied to food processors. Cross-border shipments are made using open trucks while overseas shipments are containerized. At present, the growth in this trade is limited by the capacity and organization of the production. As it expands, the challenges will be to: (i) develop an effective outgrowers scheme to provide a regular supply; (ii) introduce cold chains for shipment to urban markets in neighboring countries; (iii) perform additional processing to allow for direct shipment to overseas retailers; and, (iv) introduce more sophisticated testing, certification and traceability services. This would require the development of production clusters to capture economies of scale and scope in both inbound and outbound supply chains.

Opportunities for improving trade logistics

21. **There are several opportunities for reducing the time and cost for shipping exports and imports between the origins and destinations within Lao PDR and the international gateways,** but these are unlikely to exceed 20 percent, which corresponds to less than 2 percent of total shipment time and 5 percent or less of total transport cost.

22. **The most important opportunity for reducing cost is to decrease the percentage of empty backhauls for container shipments.** The techniques used to accomplish this include transloading to domestic containers,² investment in systems and storage for reassigning empty containers, the development of new services for consolidation of less than container load shipments, and greater use of Thai trucks for direct movement to and from the international gateway or Thai origin/destination.

23. **The principal recommended method for reducing the problem of empty backhaul of containers is to introduce transloading at the international seaport.** In other countries this is commonly performed for import cargo, both full container loads and less-than-container loads, where the volume of imports exceeds exports and/or the shipping lines require a large bond for inland movement of ocean containers and/or apply a large demurrage charge. The challenge is to provide efficient and secure transfer between the units. It is also necessary that customs permit the transfer from a sealed container to a sealed van or domestic container with little or no intervention. The principal advantage is that the ocean container is returned immediately to the shipping line while the van or domestic container is used to transport domestic cargo on the return trip. The introduction of this method will require legal and regulatory changes in Thailand, and closer institutional cooperation between Thai Customs and logistics providers serving the Lao market. It may also require intervention from the Lao authorities, given the limited incentives for a change in operating practices away from the current model.

¹ Because of limitations on volume, there are few options for becoming a supplier of out-of-season fruits and vegetables.

² Transloading involves the transfer of goods between an ocean container and either a domestic container or closed van of similar dimensions.

24. Ongoing efforts to simplify and automate clearance procedures including electronic data interchange across borders, among government agencies and between government agencies and logistics service providers will allow for better monitoring of shipments but have relatively little impact on clearance times at the border, since the average crossing time is currently less than two hours.³ However, this does not imply that further improvements are not required. It is important that current efforts continue in order to improve enforcement and ensure effective regulation as the volume as the value of trade increases and international standards become more complex. Border management procedures will become more complex as additional certifications are required for export of specific products, especially food, and to specific trading partners. There is also expected to be a higher level of scrutiny of imports as informal payments are replaced by proper enforcement. Also, as trade shifts towards smaller shipments of higher value goods, both imports and exports, then the number of transactions will increase as well as the incentives for misrepresentation. The major improvement will result from reorganizing the operations at Thanaleng to reduce the dwell time and improve the range and quality of services offered, including by private logistics service providers. Previous efforts to accomplish this have failed largely because of problems with management of the facility.

25. Assuming that the size of Lao enterprises involved in production of exports and distribution of imports remains relatively small, the principal challenge will be to redesign their supply chains to more efficiently and effectively handle small shipments. This will be part of a gradual shift from volume to value in Lao exports. For transport, this requires more efficient consolidation of exports and deconsolidation of imports for less than container load shipments. The former requires locating consolidation facilities at a point where there is sufficient traffic to allow frequent dispatch of containers to major destinations. The latter requires the co-location of deconsolidation facilities and distribution centers within the country to optimize the efficiency and security of containerized shipments.

26. The increase in value of agricultural and manufactured exports will require a change in the structure of the supply chains to implement one or more of the following strategies: (i) simplify supply chain structures to reduce transactions and provide more direct interaction between producers and retailers; (ii) increase the quality of exports through sourcing of inputs, traceability and quality control; (iii) differentiate products and distribute them in smaller volumes to higher end markets; and, (iv) extend value addition activities upstream through preparation of inputs and downstream through additional processing and customization of products.

27. The reconfiguration of existing supply chains and the development of new ones is the responsibility of the private sector, both exporters and logistics service providers. However, the public sector can support these efforts through efforts to improve and enforce the standards for quality of both products and logistics services. This is especially important for agricultural products that are perishable, e.g. fresh vegetables, or have a national identity, e.g. Lao coffee.

28. The government plays an essential role in simplifying transactions and improving collaboration among logistics services providers through the development of data communication networks and services. In addition to improving the coverage and bandwidth of data communication, the government can also develop websites to facilitate trade and provide a framework to support electronic transactions, primarily between businesses but also for business to consumer sales. The latter are of increasing importance in reducing order times for inputs, selling differentiated products, and reducing the added cost for shipping smaller consignments.

29. Finally, government regulations related to trade finance affect management of cash-flow for supply chain participants. They affect not only the ability to expand trade volume or increase the quality of both inputs and products but also the need for intermediaries to reduce cash-to-cash cycles. Among these are controls on access to foreign exchange, transfer of funds, and terms of payment for international shipments as well as provisions for financing production and guaranteeing payment for exports.

³ This does not imply that efforts to introduce ASYCUDA and develop an effective risk management system should not continue as these will be important both to improve enforcement of trade regulations and to accommodate significant increases in the volume of trade.



Introduction

1 Introduction

1. This report examines the trade logistics of Lao PDR. A Trade and Transport Facilitation Assessment was performed using a standardized toolkit and methodology developed by the World Bank to evaluate the quality of the logistics services⁴. Since the underlying objective is to improve the competitiveness of the country's exports, the assessment focused on the services used by these trades and the corridors used by these services. The assessment gave specific attention to two constraints on trade, the location of the country and the size of the trade (Table 1)

Table 1: Indicators: Size and Distance

Category		Units	Asia Decile
Population	6.7	million	6th
Vientiane	750	thousand	
Savannakhet	120		
Pakse	87		
GDP	9.48	USD billion	9th
Exports	2.27		9th
Imports	2.47		10th
Laem Chabang	~650	kilometer	

2. Lao PDR is the only landlocked country in Southeast Asia. The conventional view is that it performs relatively poorly in logistics by virtue of being landlocked. Due to its geographical location, it has traditionally had higher transport and logistics costs compared to some of its more immediate neighbors. However, there have been significant reductions. This study aims to (a) explore in detail the performance, constraints and options for possible improvement to Lao PDR's regional and global trade logistics; and (b) carry out detailed analysis of selected specific supply chains of importance to the economy. This paper presents the findings of the analytical work to understand the factors behind Lao's high trade costs and the possible measures that can be taken in individual supply chains to lower the costs and improve competitiveness.

3. However, an equally important consideration is the small volume of trade. There are significant economies of scale in logistics. As the size of shipments is reduced not only does the unit cost for logistics increase but the sophistication of the services in terms of the transactions and information flows increases. A similar increase occurs as the unit value of exports increase. As a result Lao PDR is faced with the challenge of improving the quality of its logistics services in a way that increases the value of its exports while moderating the increase in costs for the improved logistics services.

4. The study is organized in three interrelated parts: assessing the performance of the logistics sector, the international trade corridors linking Lao PDR to trade gateways in Thailand; and the supply chains used for distribution of exports. The logistics services involve collaboration between Lao and Thai suppliers and include the transport, storage, clearing and forwarding services. The trade corridors provide physical connections for the movement of goods but, more importantly, they provide a series of services that allow the goods to move along the corridor while the supply chains combine the services associated with movement of goods through the trade corridor with other activities that directly affect the value of these goods.

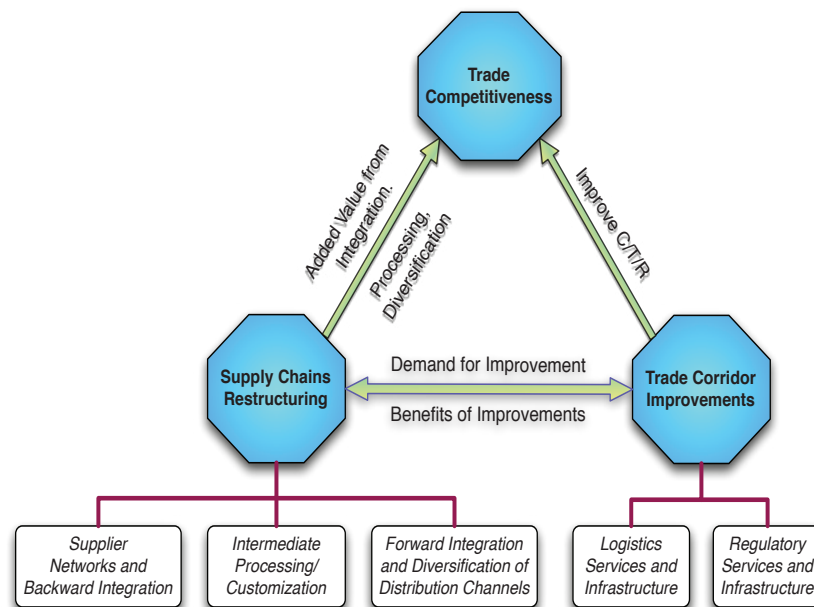
5. The increase in competitiveness of global trade over the past decade can be attributed to changes to the way supply chains are organized. Three potential benefits from reorganization of the activities involved in delivering inputs and final products from origin to destination. These include shortening order cycles and improving inventory management to reduce the risk of shortages and excess stock, as well as sourcing and intermediate processing of inputs, customization of finished products, and selection of distribution channels for the finished products. The supply chain performs three major functions. In addition the handling of the physical goods there

⁴ World Bank (2010) Trade and Transport Facilitation Assessment – A Practical Toolkit for Country Implementation, International Trade Department, Washington, DC: The World Bank.

is the exchange of information between the supply chain participants to coordinate their activities and meet any regulatory requirements and the execution of transactions associated with the change in ownership of goods as they move through the supply chain and the procurement of logistics services and

processing activities. The design of the supply chain determines the value of the delivered goods. The value can be increased by restructuring the supply chains to take advantage of improvements in the trade corridor or improvements in other activities (Figure 1).

Figure 1: Trade competitiveness framework



6. This report is presented in four sections. The first part examines the foreign trade of Lao PDR, the opportunities for growth and the logistics services in the movement of imports and exports between the country and its major gateways. The second evaluated the performance of the corridors connecting the major origins/destinations in the country and the principal seaport used for international trade. The third analyses the structure and performance charac-

teristics of the supply chains used for selected trades and the implications for restructuring to support growth in the export trade. The final section presents a series of recommendations for improving the competitiveness of the exports through improvements in the structure of the supply chains, the logistics services used by these supply chains and the corridors used by these supply chains.



Core logistics services

2 Core logistics services

2.1 Trade

7. In Lao PDR, the value of trade has risen rapidly over the last decade with both imports and exports increasing by an average annual rate of 24 percent (Figure 2). Currently the value of merchandise trade accounts for about 60 percent of GDP, having increased from 10 percent two decades ago (Figure 3). Most of the trade is with its immediate neighbors, especially Thailand, which has accounted for about 60 percent of merchandise trade for the last decade (Figure 4). During the same period, China's portion has risen from 5 percent to 21 percent. The nature of the exports has changed during this period with trade in electricity, copper and other ores including gold and silicon rising from 2 percent of total value to 64 percent.

Figure 2: Value of Trade 2001-2012

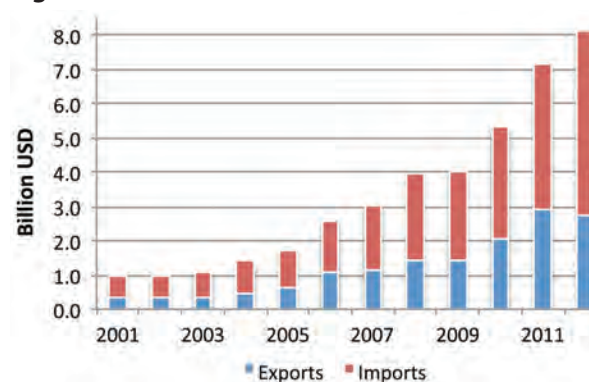
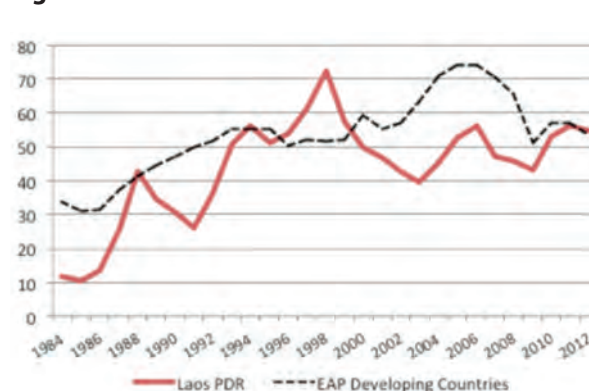


Figure 3: Merchandise Trade as a % of GDP



8. If bulk commodities are excluded, the principal exports are wood products, apparel and footwear, and coffee (Figure 4). During the last decade their shares of exports (exclusive of the first three) declined from 42 percent to 32 percent for wood products and from 44 percent to 29 percent for apparel and footwear but increased from 4 percent to 7 percent for coffee. Other agricultural exports increased their share from 3 percent to 21 percent.

Figure 4: Percentage Trade By Partner

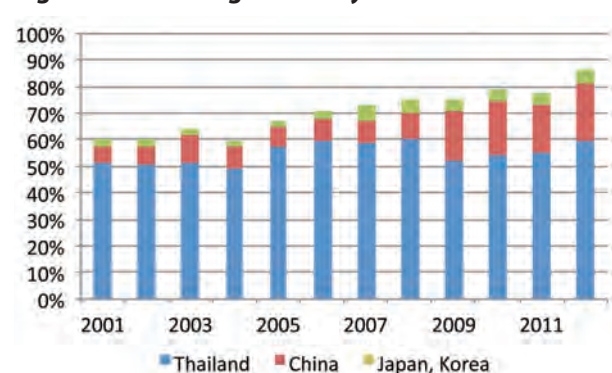
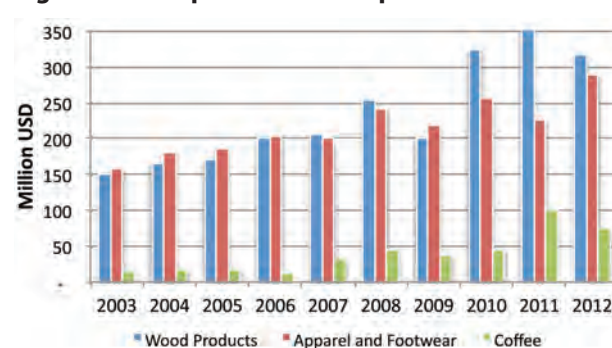


Figure 5: Principal Non-Bulk Exports



9. The volume of international freight is relatively low, approximately 2 million tons per year. Most of this is commodities that are shipped in bulk, e.g. minerals, grains, fertilizer, stone. The volume of container traffic is estimated to be between 30-40 thousand loaded TEU. In addition, there is a huge imbalance between import and export containerized cargo volumes.

10. The volume of containerized import cargo is more than double the volumes of exports in terms of weight. As a result, there is a significant amount of empty backhauls for containers, but the volume is much larger than can be explained by the trade imbalance. There is also a significant amount of empty containers delivered from the Thai seaports for loading in Lao PDR. The additional empty container movements are due to differences in box configuration and the control of containers owned by the shipping lines. The most important is the mismatch in box size. Most of the inbound containers are 20-foot boxes controlled by lines serving the Asian region while most of the outbound boxes are 40-foot boxes controlled by lines serving Europe. There is also a mismatch in the use of reefer containers primarily for imports and oversize boxes primarily for exports.

11. A major contributor to logistics costs in Lao PDR is the movement of empty containers. Shipping lines own a large pool of containers and then lease additional boxes as required. The lines do not share their own boxes with other shipping lines and generally manage the allocation of their boxes according to trade routes. In view of trade imbalances and of the higher container rates they impose on the inbound trip for transpacific pendulum routes, ship owners often assign boxes to specific trades. For example, they will reposition containers back to Asian export markets instead of waiting for the availability of an export load. As a result, for low volume markets such as Lao PDR the shipping lines have policies to minimize the time boxes stay in such countries.

12. Non-container movements have less of a problem because they can carry domestic cargoes on the lightly loaded leg or engage in triangular routes with two loaded legs. Since most of the journey takes place in Thailand, the trucks can take advantage of the larger market for their services.

13. Export volumes from Lao PDR tend to be small. An analysis of customs data suggests as many as 70 percent of consignments are less than 700 kg (Figure 6). As a result about 60 percent of export containers are LCL. Much of the consolidation occurs at the point of production but some of the cargo is consolidated by third parties located in Thailand.

2.2 Overall logistics performance in Lao PDR

14. Presently, evidence suggests that Lao PDR's poor logistics performance is primarily due to a combination of domestic and regional factors. Lao PDR has seen gradual improvements in the performance of its logistics based on 2007, 2010 and 2012 data (Figures 7-8) from the Logistics Performance Index (LPI). While it compares favorably with other landlocked low-income countries, it remains behind regional competitors (Figure 9-10). Improvements have been greatest in measures relating to customs, infrastructure and quality of logistics services but performance declined in the international shipping and timeliness dimensions of the LPI. The costs for international shipments reports in the Trading Across Borders component of the Doing Business Survey (Table 2) indicate that Lao PDR's costs are at least double those of most other countries in South East Asia. Improvements are necessary in order to compete against dynamic regional supply chains that are common across the South East Asia region.

Figure 6: Distribution of Lao PDR export consignment sizes (2006-10)

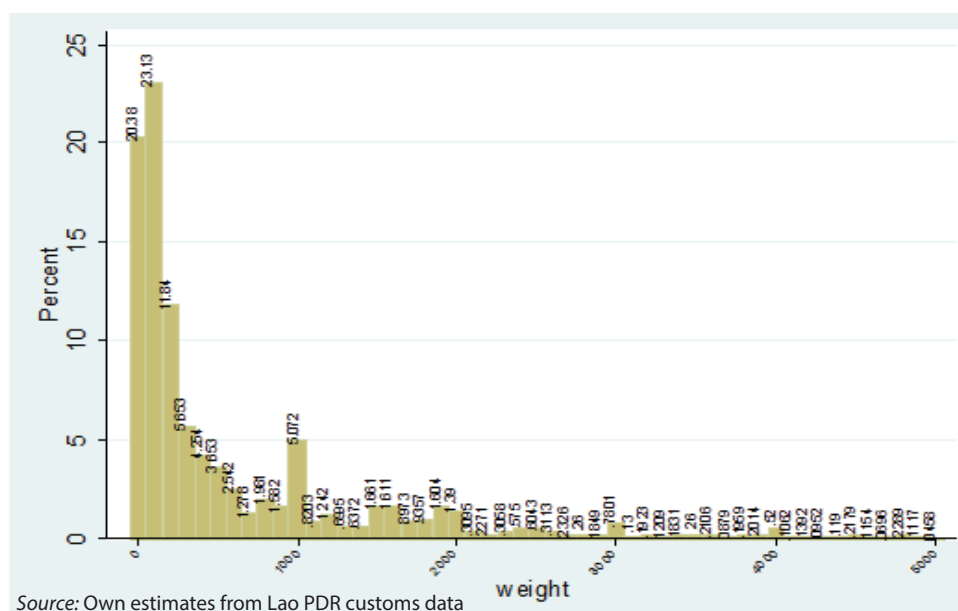


Figure 7: Lao PDR LPI 2007-2012



Figure 8: LPI Country Comparison 2012

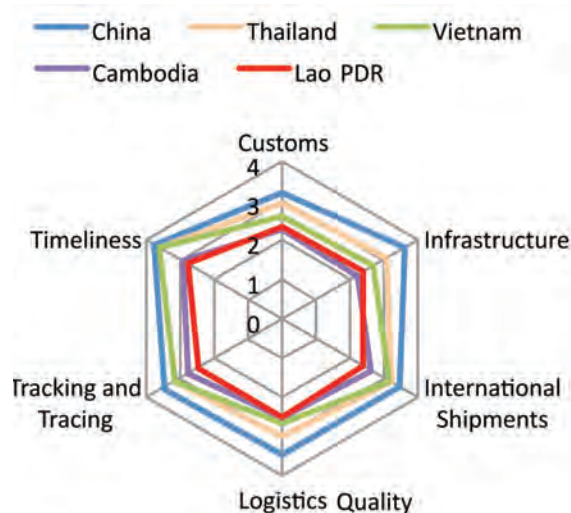


Figure 9: International LPI 2012 score

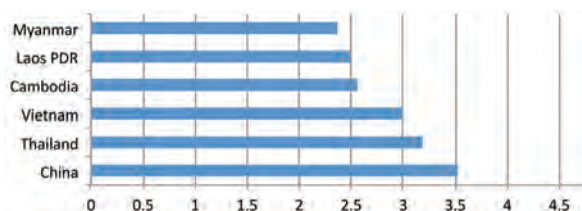


Figure 10: LPI 2012 Score for customs clearance

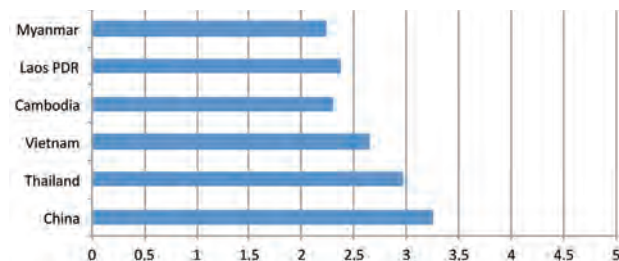


Table 2: While the time and number of documents necessary to import and export in Lao PDR is not excessive, average shipping costs are higher than for regional competitors

	Documents to export (number)	Time to export (days)	Cost to export (US\$ per container)	Documents to import (number)	Time to import (days)	Cost to import (US\$ per container)
Malaysia	5	11	435	6	8	420
Singapore	4	5	456	4	4	439
Thailand	5	14	585	5	13	750
Vietnam	6	21	610	8	21	600
Cambodia	9	22	755	10	26	900
Lao PDR	10	26	2,140	10	26	2,125
East Asia & Pacific	6	21	923	7	22	958

Source: Doing Business 2012, World Bank

2.3 Regional institutional arrangements on trade facilitation and logistics

15. As a landlocked country, Lao PDR has to cooperate with neighboring countries to access seaport gateways for its overseas trade. The main regional mechanisms that have a large influence on Lao's regional connectivity are GMS and ASEAN. In fact, there are two main regional agreements that Lao PDR is party to that have significant impacts on the efficiency of regional corridor operations. These are the GMS Cross Border Transit Agreement of 1999 and the ASEAN Framework Agreement on the Facilitation of Goods in Transit of 1998.

2.3.1 Greater Mekong Sub-region

16. There is a National Transport Facilitation Committee, operating under the GMS Program, which is chaired by the Ministry of Public Works and Transport, with some overlapping functions with the National Trade Facilitation Secretariat. The major associations in the country including LIFFA and LNCCI are members of the committee which has the following as priorities: a) negotiation of traffic rights in road transport, b) simplification of border procedures, and c) development of multimodal transport. They also consider capacity building as a priority. There are presently no educational programs in the country that focus on logistics, something that is regarded as a major constraint to sustainable reforms.

17. In general, GMS has provided the regional context for recent measures to improve Lao PDR's logistics performance, particularly in terms of infrastructure development. These developments have been conceived as regional economic corridors, of which the most relevant one to Lao PDR is the East

- West corridor which is a 1,450-kilometer highway linking southern Lao PDR with Thailand, central Vietnam, and Myanmar. Gunn (2007) argues that though the corridor is almost fully built it has not attracted that much traffic because of various other constraints including poor infrastructure in parts, red tape, and other obstacles. Lord (2010) looked into the impact of the GMS East West Economic Corridor (EWEC) on living standards in the Lao PDR province of Savannakhet. He found that the central districts of Savannakhet have benefited more from the transport infrastructure of the EWEC than the surrounding districts. Secondly, he also found that infrastructure development has been an effective way of directly impacting on household well-being and indirectly contributing to human endowments of those households by enhancing their consumption of education and health services. Nevertheless, the results also indicate that infrastructural developments have not been allocated among districts in the province in a way that could have produced a more equitable distribution of their effects on living standards. The implication is that infrastructural investment needs to better target low-income rural areas in the peripheral districts to reduce the growing inequality among districts in Savannakhet.

18. Given its landlocked position, it is perhaps not surprising that Lao PDR has concluded several bilateral agreements with all its immediate neighbors, mostly under the GMS umbrella (Table 3). The major bilateral legal instruments that Lao PDR is party to and which affect the performance of the regional trade corridors include:

Table 3: Lao PDR's major transport and transit agreements

Instrument	Year of ratification, accession, agreement
Bilateral agreements on road transport with Thailand	1999
Bilateral agreements on road transport with China	1993
Bilateral agreements on road transport with Cambodia	1999
Bilateral agreements on road transport with Vietnam	1993
Greater Mekong Sub-Region Cross Border Transit Agreement (CBTA)	1999
Subsidiary agreement specifying road transport arrangements with Thailand	2001
GMS Customs Transit Guarantee System (allows Thailand and Vietnam to transit across Lao PDR without transshipment)	2009

19. The CBTA has great potential but implementation has been slow.

The CBTA was originally a trilateral agreement between Lao PDR, Thailand, and Vietnam signed on 26 November 1999 in Vientiane. Since then, Cambodia, China and Myanmar have also joined. It is a comprehensive multilateral instrument that covers several aspects of cross-border transport facilitation, including single-stop and single-window customs inspection systems, cross-border movement of persons (i.e., visas for persons engaged in transport operations), transit traffic regimes, including exemptions from physical customs inspection, bond deposit, escort, and agriculture and veterinary inspection,

requirements that road vehicles will have to meet to be eligible for cross-border traffic, exchange of commercial traffic rights and infrastructure, including road and bridge design standards, road signs, and signals. The CBTA has 20 annexes and protocols that detail provisions in these areas (Table 4). The CBTA applies to selected routes mutually agreed between states with designated points of entry and exit. However, not all countries have ratified all the Annexes and Protocols, preventing the full implementation of the agreement. Rather, implementation has largely been driven by bilateral agreements between the parties.

Table 4: Thailand - status of ratification of CBTA annexes

Annex	Title	Status
Annex 1	Carriage of Dangerous Goods	In a process of enactment for ratification
Annex 2	Registration of Vehicles in International Traffic	Ratified
Annex 3	Carriage of Perishable Goods	Ratified
Annex 4	Facilitation of Frontier-crossing Formalities	In a process of enactment for ratification
Annex 5	Cross-border Movement of People Parts 1-4:	Ratified while Part 5 In a process of enactment for ratification
Annex 6	Transit and Inland Clearance Customs Regime	In the process of the establishment of guarantee organization
Annex 7	Road Traffic Regulation and Signage	Pending ratification
Annex 8	Temporary Importation of Motor Vehicles	In the process of the establishment of guarantee organization
Annex 9	Criteria for Licensing of Transport Operators	In a process of enactment for ratification
Annex 10	Conditions of Transport	Pending enactment of the domestic law
Annex 11	Road and Bridge Design and Construction Standards and Specifications	Ratified
Annex 12	Border Crossing and Transit Facilities and Services	Ratified
Annex 13a	Multimodal Carrier Liability Regime	Ratified
Annex 13b	Criteria for Licensing of Multimodal Transport Operators for Cross-border Transport Operations	Ratified
Annex 14	Container Customs Regime	In the process of incorporation relative to a guarantor
Annex 15	Commodity Classifications Systems	Ratified
Annex 16	Criteria for Driving Licenses	Ratified
Protocol 1	Designation of Corridors	Routes and Points of Entry and Exit Border Crossings Ratified
Protocol 2	Charges Concerning Transit Traffic	Ratified
Protocol 3	Frequency and Capacity of Services and Issuance of Quotas and Permits	Pending enactment of the domestic law

20. In particular, Thailand has not ratified some key annexes of the CBTA thereby hampering some of the intended benefits. Ratification of some of its provisions could allow more seamless movement of cargo across borders without the need to transship at the borders. Taking the lead to provide a predictable regulatory regime would benefit Thai companies in particular that would be seeking to exploit the low labor costs in neighboring countries such as Lao PDR.

21. The bilateral agreements have had a greater impact on service provision than the multilateral ones, possibly because the multilateral agreements provide the framework for the bilateral agreements between the states. For instance, based on the 1999 agreement between Lao PDR and Thailand there has been on paper the elimination of the requirement for transshipment at Nong Khai or Mukdahan, allowing certified trucks from each country to deliver and pick up cargo on either side of the border. In theory, the relaxation based on the 2001 subsidiary agreement covered both inbound and outbound flows, and allows Lao PDR trucks to access Thai markets. It was intended to reduce damage and theft of cargo that occurs during the transshipment; eliminate the need for customs checks for properly sealed cargo; and reduce unofficial payments. The agreement with Thailand is automatically renewed each year unless there is an objection from either country.

2.3.2 ASEAN

22. The ASEAN Framework Agreement for the Facilitation of Goods in Transit is one of two competing proposals for an integrated transit regime in South East Asia. Cambodia together with Lao PDR, Thailand, and Viet Nam are parties to the ASEAN agreement whose objective is to facilitate the transportation of goods in transit; simplify and harmonize transport, trade and customs regulations requirements; and establish an effective, efficient, integrated and harmonized transit transport system in ASEAN. The ASEAN Framework Agreement for the Facilitation of Goods in Transit (AFAFGT) of 1998 sets out a package of several measures pertaining to regulation of frontier facilities (designation frontier posts), harmonization and simplification of customs procedures, traffic, transit transport services, road transport per-

mits, technical requirements of vehicles, mutual recognition of inspection certificates, mutual recognition of driving licenses, and motor vehicle third-party insurance. However, the ASEAN ideals are yet to be fully realized though the target year for the liberalization of international road freight transport services is 2015.

23. The AFAFGT framework on trade facilitation offers great potential for Lao PDR. It recognizes that logistics performance for the ASEAN member countries can be improved through measures to facilitate the fast movement of goods carried by road and rail transport in particular. It recognizes also that the benefits of improved infrastructure across South East Asia will remain unrealized unless the regulatory environment is modernized to remove regulatory bottlenecks in particular. One of the main bottlenecks is in the granting of transit and traffic rights. Common practices at most border posts involve the transloading of cargo from a vehicle registered in one country to another and for the transit procedure to be initiated at each land border crossing. A study by ALMEC cited by IBF International Consulting (2008) estimates that this increases the cost of transport by US\$ 100-300 per container on top of transit fees, which add another US\$ 150 to 200. Perhaps not surprisingly, there is little transit traffic across several countries, and especially across Cambodia. Lao PDR however, is one of the exceptions as it carries an increasing volume of transit traffic between Thailand and Vietnam. This is a significant barrier that suppresses intra-regional trade. However, implementation of the AFAFGT framework has been very slow. Rather, countries seem to rely more on the GMS framework.

24. Two of the major constraints to cross border movement of trucks in South East Asia are the difference in axle load limits and third party liability insurance. The lack of integration in these two areas contributes to the cost and inconvenience of operating trucks across borders in the region. This is the case between Lao PDR and Thailand where limits of the former are lower than in the latter (Table 5). While the GMS says with respect to weights and axle loads that vehicles shall comply with the technical standards of the different countries, ASEAN has come up with some limits to facilitate cross border operations. More generally, the countries are working towards

standardization, starting with the limit for a single axle. For example, ADB (2008) found that on some routes, notably RH9, there has been standardization already where all the countries, including Lao PDR, have raised their limit for single axles to 11 tons from

9 tons, the same as in Thailand and Vietnam. Still, Lao PDR roads are designed to the lower limits and there is concern that the raised limit will contribute to road infrastructure damage.

Table 5: Vehicle axle load limits in Lao PDR and Thailand

Truck type	Axle load limit in kg		ASEAN limits ⁵
	Thailand	Lao PDR	
Truck with 2 axles (4 wheels)	9,500	9,100	
Truck with 2 axles (6 wheels)	15,000	NA	
Truck with 3 axles	25,000	21,000	21,000
Truck with 4 axles (12 wheels)	30,000	21,000	25,000
Semi-trailer with 3 axles	45,000	37,500	
Semi-trailer with 4 axles	50,500	37,500	32,000
Truck and drawbar trailer with 4 axles	35,000	37,500	
Truck and drawbar trailer with 5 axles	47,000	37,500	36,000
Truck and drawbar trailer with 6 axles	53,500	37,500	

Source: WFP (2008) and own estimates

2.3.3 Customs and border management

25. One of the areas where Lao PDR has made significant progress in trade facilitation is in customs and border management modernization.

Over the past five years Lao PDR has implemented significant reforms to improve the trade environment in the country. While some measures were driven by internal forces, others were initiated to meet commitments at the regional level, mostly ASEAN, and at the global level, especially accession to the World Trade Organization (WTO). Prior to the reforms there were up to sixteen⁶ other local and central government agencies involved in the process in 2006, now customs has the principal responsibility for the processing and clearance of goods. In general, the processing and clearance of import, export and transit goods in Lao PDR were relatively inefficient and time consuming and presented a significant obstacle to trade. The regulatory regime and clearance processes were administratively complex and heavily dependent on inefficient and resource intensive physical in-

spection. They were also excessively reliant on the manual processing of paper-based documentation, characterized by excessive face to face interaction between traders and government officials, and were hampered by a lack of uniformity in treatment across the country. In addition, the institutional capacity of customs and other key government agencies to apply internationally accepted approaches to modern border management was relatively weak. Traders, regardless of their volumes, transaction history, compliance record and corporate governance arrangements were often subject to essentially the same excessive controls and little incentive existed for traders to strive to improve compliance.

26. Starting in 2008, Lao PDR has received support from the World Bank and other agencies to implement customs and border management reforms. Development partner support has sought to improve the efficiency and effectiveness of customs administration by simplifying customs

⁵ ASEAN Protocol 4 Annex F, which sets out limits for different types of vehicles.

⁶ Including Immigration Police, Customs, Commerce, Food and Drug, Quarantine, Treasury, Health, Insurance, Drug Control, Post, Tourism, Forestry, Tax, Foreign Affairs, Communications and Transport who were all present at the Friendship Bridge border check point in Vientiane in 2006.

procedures, eliminating duplication and redundancy, reducing transactions costs and time to clear goods, and increasing transparency and accountability. Automation is being progressively introduced through the introduction of the ASYCUDA World declaration processing system. Complementary reforms have also taken place in other areas leading to a reduction in the number of agencies that are physically present at the border. A Trade Portal was also recently launched, providing the trading community with easy access to valuable information to ensure compliance with trade regulations. Taken together the various initiatives have resulted in a modern, rationalized and automated border management environment; especially at the Vientiane customs check points (Friendship Bridge I and Thanaleng Warehouse) where ASYCUDA World is already fully operational.

27. Lao PDR customs has commenced preparatory work towards introducing a National Single Window. There are now only three agencies physically present at the border checkpoints: customs, immigration and quarantine. Efforts have also been made to reduce the number of documents required for types of goods other than those specified in the list of controlled and prohibited goods. This should lead to even more efficient customs and border management performance. This derives from a realization that while the number of agencies physically at the border has reduced, complying with their regulatory requirements still imposes a heavy administrative burden on traders. It is expected that once implemented the National Single Window system will allow traders to submit all import, export and transit information required by regulatory agencies via a single electronic gateway instead of submitting essentially the same information numerous times to different government entities, some that are automated and others that still rely heavily on paper.

28. More generally, the Lao PDR Government has taken a number of steps to ease import licensing procedures. Importers are now only required to declare their imports at border checkpoints. Imports are categorized into three broad groups: general, controlled, and prohibited goods. The import of general goods does not require any approval from MOIC and/or line ministries; importers only need to clear goods at the customs checkpoints. Controlled

goods are subject to approval for “technical certification” reasons. These are products under the control of MOIC, Ministry of Agriculture and Forestry, the Ministry of Public Health and the Ministry of Information and Culture. Prohibited goods are those that are considered harmful to the national economy, public order, national security, and cultural traditions. Around one third of all imports are subject to an additional certificate, licensing or permit requirement by other government agencies, and of these the majority are import licenses required by the Ministry of Industry and Commerce.

2.3.4 Clearing and forwarding

29. Lao PDR has a small freight forwarding industry. The national association has some 24 members, including international companies. Most firms provide both clearing and forwarding services. Generally, large international LSPs are not active in the domestic market because volumes are small and government regulations require that they form joint ventures with domestic firms or use a domestic firm as an agency. Lao PDR shippers and importers rarely get directly involved in arranging the international sea shipments. This is typically handled either by international or Thailand based agents. The costs that Lao PDR shippers or importers face directly are those for the overland movement between points in Lao PDR and the Thai ports of Laem Chabang, Lat Krabang or Bangkok.

30. The capacity of the majority of Lao PDR’s clearing and forwarding firms is quite low. The two largest companies handle on average about 150 containers per month, but smaller firms typically handle 30 containers or less. The larger firms provide warehousing, forwarding and customs clearance services and some also provide transport. Most of the business for the small players comes from handling government and project cargo. These firms typically have an arrangement or joint venture with a Thai company that helps with the transit operations in Thailand, as well as arrangements for shipping cargo to overseas markets.

31. Lao PDR shippers have well established trade relationships with counterpart forwarding and trucking firms in Thailand which re-enforces Thailand’s roles as the main gateway for Lao PDR

trade. For instance, even though the cost of shipping a container from Vientiane to the Shanghai via Vietnam is approximately \$200 cheaper, firms still prefer to do so through Thailand.

32. The challenges posed by small volumes in Lao PDR have long been recognized. Only a few logistics service providers (LSPs) able to provide both domestic and international third party logistics (3PL). These are either part of international forwarding companies, participate in global consortia, or have direct relations with foreign CF agents. So far only the large domestic players (Lao PDR Freight Forwarder and Société Mixte de Transport) have developed relationships with international, mainly Thai, logistics companies. The others small companies mostly offer warehousing and either trucking or clearing.

33. Typically, overseas buyers nominate the shipping line and freight forwarders who the exporter has to work with. An earlier study (Arnold – 2003) pointed to the small volumes and seasonal nature of traffic flows as a major factor affecting the availability, cost and quality of logistics services. Equally important is the role of overseas buyers in selecting LSPs and the comparative advantage enjoyed by Thai LSPs. Since the production of most exports is controlled by foreign investors and sold on an ex-factory or FOB (Bangkok) basis, it is the foreign buyer or the parent company that organizes the international transport. The buyers may also specify the packing sequence for the container. A local clearing and forwarding agent usually organizes the land transport and clearance at the Lao PDR border. Most Lao PDR exports are sold free on board in Bangkok and exports go through lengthy processes in Bangkok. Lao PDR producers are responsible for the movement to the port.

34. Import cargo passes through the Lat Krabang inland container depot (ICD) near Bangkok. Goods remain there typically for 2-3 days while waiting for documents from the Lao PDR Embassy in Bangkok. Thai customs inspect all cargo including transit cargo. A number of containers are de-stuffed at the warehouse, also contributing to the limited number of container movements inland to Lao PDR.

35. The larger Lao PDR forwarders provide consolidation services. A few have the capability to provide packing/labeling, inventory management, and other value-added services, but there is little demand for these services in the local market. For manufactured goods, these services are performed either in the factory rather than being outsourced or at the other end of the supply chain closer to the market. For agricultural products, most of the 3PLs providing processing, packaging and other services are located in Thailand. Most of the demand for warehousing comes from traders and wholesalers who have their own facilities. There is little additional demand since both manufacturers and agricultural processors keep their inventories to a minimum. The freight forwarding companies make minimal use of ICT systems (other than e-mail) to manage their shipments and services including inventory. Despite Government issuing of a number of regulations to support the movement of goods, there are still numerous procedures that have not been completed due to the lack of common application of ICT networks and the coordinating mechanism.

36. Customs clearing agents in Lao PDR usually charge a flat fee per declaration for clearing cargo. For imported inputs the typical charges for clearing a 20-foot container are \$100-150, whereas for exports the costs are less, about \$120-130. Since most customs brokers charge per declaration, they do not make a distinction between 20 and 40-foot containers. The resulting cost to clear cargo is roughly double that in Vietnam but the major components are informal fees, according to clearance agents. The costs of clearing cargo are directly passed on to the customer.

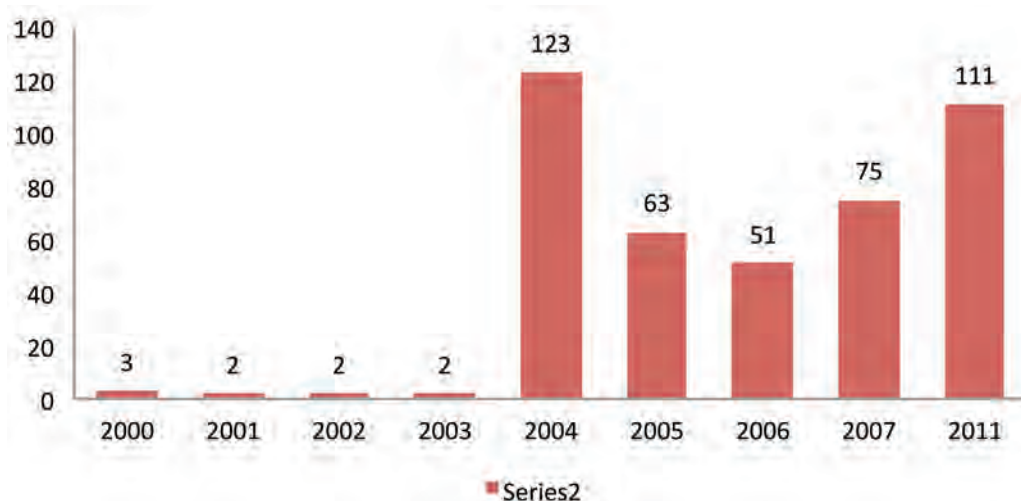
37. Agents maintain that informal fees account for a large share of their fees. While this is difficult to verify, the argument is made that the efficiency of the clearance process depends on relationships between agents and customs officials. As a result, the outcomes for two different agents processing similar documents could be different. It is expected that the subjectivity and lack of transparency in the processes will be reduced once the various automation initiatives such as ASYCUDA World and the Single Window, described below are implemented.

2.3.5 Trucking services

38. Thai and Lao truck operators are able to compete for the haulage of external trade as part of a 1999 agreement that eliminated the requirement for transshipment at Nong Khai or Mukdahan, allowing certified trucks from each country to deliver and pick up cargo on either side of the border. When combined with a 2001 subsidiary agreement that covers both inbound and outbound flows, this allows Lao PDR trucks to access Thai markets. It was intended to reduce damage and theft of cargo that occurs during the transshipment; eliminate the need for customs checks for properly sealed cargo; and reduce unofficial payments.

39. There was a dramatic increase in number of Thai transporters operating across the border following the 2004 elimination of restriction on who could participate under this agreement. This led to a dramatic increase in supply of transport (Figure 11).⁷ International transport operations licenses are issued to firms for 5 years⁸. In 2011, 111 of these firms had official authorization to enter into Lao PDR;^{9,10} even though there is some evidence that the market is dominated by a few Thai firms. The increase in availability of road permits had an effect on prices, where some estimates put the reduction in transport prices at 20 percent.

Figure 11: Number of transport firms with licenses to operate between Thailand and Lao PDR



Source: TTFA surveys

40. The trucking industry in Thailand is much larger, more sophisticated, modern and efficient than in Lao PDR. Most of the global transporters, e.g. TNT and FedEx, have a presence in Thailand. Several Thai transporters also offer regional services. There are a large number of bonded operators that specialize in transport to Lao PDR. Thai transport companies

also offer a wide range of additional services including consolidation, multimodal transport and different levels of service in terms of speed and reliability. The large Thai operators have fleets in excess of 500 trucks and many companies supplement their fleet by hiring in individual operators.

⁷ Narong Pomlaktong, Rattana Jongwilaiwan, Prakai Theerawattanakul and Rapee Pholpanich. Road Transport Policy in Thailand. The Impacts and Benefits of Structural Reforms in Transport, Energy and Telecommunications Sectors. APEC, January 2011. pp. 279.

⁸ Royal Government of Thailand, http://www.nongkhaitransport.go.th/new/index.php?option=com_content&view=article&id=76&Itemid=62; Royal Government of Thailand Land Transport Act. http://www.thailaw.com/thailaw3_2.pdf

⁹ Cargo Unit, Department of Land Transport, Royal Government of Thailand.

¹⁰ After a Thai firm is issued a license to enter into Lao PDR, it must then register each of its trucks that it plans to use to enter Lao PDR.

41. The high efficiency of the Thai trucking sector is reflected in the large number of truck trips per month. For example, long-haul operators will make 2-3 trips per truck per week while short-haul operators make two or more trips per day. As a result, the average truck travels about 100,000-130,000 km per year. This is sufficient to justify the use of newer trucks with the major expense being for depreciation. The operating costs vary. Fuel accounts for roughly 30-35 percent of operating costs and 5-15 percent for drivers. The cost for maintenance and tires exceeds the cost for drivers. The majority of the freight carried by the larger trucking companies is based on long-term contracts that are competitively bid with prices adjusted for changes in fuel prices while the smaller companies continue to rely primarily on individual shipments. Terms of payment for trucking services vary. Smaller customers pay on average within one week while larger companies with longer-term contracts pay 30 days after transport services are provided. For new customers an advance payment is required.

42. Backhaul cargoes are difficult to locate for several reasons. The difficulty in locating backhaul cargoes for goods shipped through the Thai ports is attributable not only to the imbalance in trade and problems matching loads with containers but also constraints on the time available to find a return load. Per Diem rates are charged after a designated period with the transporter liable for payment up to the time the container is returned to the port. Because of the small volumes, the shipping lines have not established storage yards in Lao PDR where the boxes can be returned and from which they can be dispatched to exporters for loading backhaul cargo.

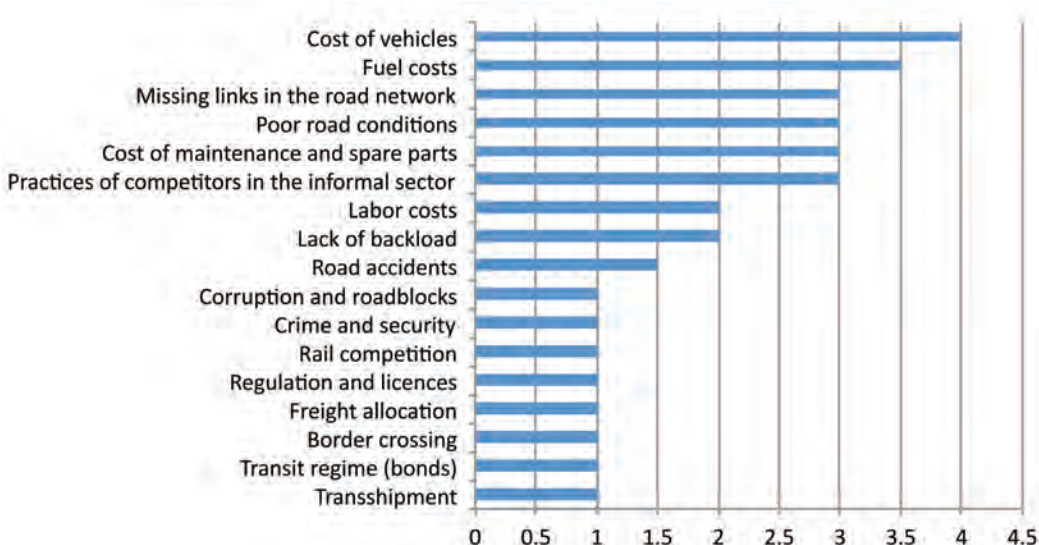
43. Due to the above constraints and higher load factors that Thai achieve by carrying domestic cargo on the backhaul leg, Lao PDR trucks are at a competitive disadvantage for both import and export cargoes. Despite these advantages and the proximity to the Thai border of the major centers for export production in Lao PDR, (less than 20 km.) recent studies suggest that Lao PDR forwarders and transporters continue to handle a significant portion

of the movements of cargo between the border with Thailand and the domestic origin or destination. This portion can add as much as 20 percent to the costs for the total land movement.

44. Other reasons that Lao PDR operators appear not to be interested in providing cross border services include: (i) their trucks do not meet Thai safety standards; (ii) the vehicles are driven on different sides of the road; and, (iii) differences in language expose Lao PDR drivers to harassment. These factors are less of an impediment for Thai truckers because of the short distances travelled in Laos. On the other hand, cargo insurance discourages both Thai and Lao trucks from crossing the border. South-east Asia does not have a functioning regional third party liability insurance scheme so insurance companies do not cover cargo beyond their national borders. Lao PDR importers and exporters must independently arrange for insurance when Thai trucks cross the border. For Lao PDR coffee exporters, insurance for Thai trucks costs 150,000 Kip per truck per shipment. Trucks are covered for up to one week and insurance is taken out from an agent at the border. Apparently it is easier for Thai insurers to provide insurance for trucks entering Lao, or at least have alliances with Lao PDR insurance companies to facilitate coverage across borders than vice versa.

45. Most of the trucking services in Lao PDR involve independent operators and small trucks. The organized trucking sector consists of small fleets of trucks transporting project cargo and the projection of large manufacturers, e.g. Lao PDR beer. Because of the predominance of short haul traffic, the primary concern of Lao PDR trucking firms is controlling operating costs rather than expanding their market share (Figure 12). The trucks are older and most are fully depreciated. The cost for new or used vehicles is considered the greatest problem because the cost must be amortized over a small number of kilometers. The fuel costs are a problem because of high consumption due to the age of the engines, the short distances travelled and the low operating speeds.

Figure 12: Severity of obstacles faced by Lao PDR trucking Firms (1-5 with 5 most severe)



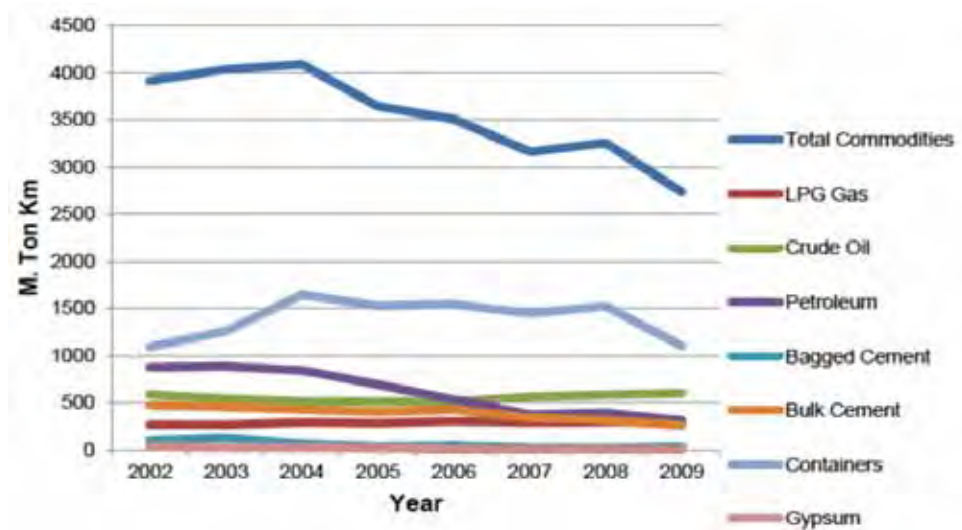
Source: TTFA surveys

2.3.6 Rail Services

46. Lao PDR has only a short stretch of railway that connects it to the Thai network. However, traffic volumes moved by rail are negligible, even in Thailand. While Thailand has a well-developed primary and secondary highway network and efficient road transport services, there has been no comparable effort to develop the railway. As a result rails share of the freight traffic has continued to decline from 9 percent in 2000 to 6 percent by the mid-2000s to approximately 2 percent currently (Thailand Office of Transport and Traffic Policy and Planning, 2006). The volume of container traffic is nominal as shown in Figure 13. The average domestic cost of container movement in Thailand is \$1,000. The rail provides low cost passenger transport using relatively old rolling stock and subsidized fares. Revenues cover only about 80 percent of operating costs with annual losses in excess of \$300 million.

47. The Thai rail system has great potential to carry higher volumes of goods traffic. The rail network includes about 4200 km of meter gauge track. It consists primarily of main lines that radiate from Bangkok into northern, northeastern, eastern, and southern corridors (Figure 14). The network serves 42 of the 77 provinces. The network can serve standard ISO containers. Super high cube non-ISO containers can pass through most of the network. A portion of the network has been strengthened to allow maximum axle loads of 20 tons but the condition of most of the track is poor. A third of the sleepers are wooden and less than a third of the rails having been replaced in the last 30 years. The signal and interlocking system is obsolete. There are also a large number of accidents. Between 2007 and 2009, there were an average of 107 derailments per year.

Figure 13: Rail Freight by Commodity



Source: THAILAND: Supporting Railway Sector Reform, TA 8078-THA, ADB, March 2013

Figure 14: SRT Railway Lines



Source: Wikipedia

48. The SRT lacks modern rolling stock and what it does have is in poor condition. Only about two-thirds of its diesel locomotive fleet is operational. The rolling stock includes special wagons for carrying cement, petroleum and the other major cargoes. These are bogied wagons with maximum length of but about one third is more than 40 years old and another third more than 25 years old.

49. Lao PDR has only a very short railway link connecting to Thailand. This is a meter-gauge track connecting Thanaleng across the Mekong River to Nong Khai. The extension was opened in 2009 for passenger service. The extension was conceived in the early 2000s partly to increase the volume of bilateral trade between Lao PDR and Thailand, but has never been used for freight transport. It would appear also that freight volumes on the link are low and rail is not that competitive when compared to road transport. AFD of France has been conducting feasibility studies for a 9km extension from Thanaleng to Vientiane. This could have provided an all-rail service between Vientiane and the major transshipment ports of Thailand, Malaysia and Singapore but again there appears to have been no demand.

50. The State Railway of Thailand is one of the transporters registered to carry transit cargo to/from Lao PDR, however in practice there are no freight services. The hub for its container transport operations is the ICD located in Lat Krabang approximately 117km from Laem Chabang port and 30 km from Bangkok. It handles about ¼ of containers that pass through Laem Chabang port. The nearest railhead to Vientiane that handles containers is in Nong Khai about 535 km from Lat Krabang and 624km by rail from Bangkok. The volume of traffic generated in Nong Khai is relatively small and there is no freight generated in Thanaleng. Nevertheless, an intermodal facility has been proposed to provide consolidation and distribution for containerized cargo on a 9-hectare site located near Nong Khai (Natha). Udon Thani is the closest railhead to Vientiane that has a significant volume of freight traffic. It is about 75 km closer to Lat Krabang but there are no regular container services between the two.

51. A potentially more significant rail option is the proposed China-Thailand railway, which has the potential to improve competitiveness, but the overall costs of financing the project are enormous. There are plans for the construction of a high-speed railway line from Kunming in China across Lao PDR to Thailand. The plan was proposed in 2009 but has been delayed by contractual problems, by concerns over the likely local impact of the development and debt that would be incurred by Lao PDR should the project proceed. If developed, the line would place Lao PDR at the center of the regional network and leverage the country's central location in the region, turning conventional logic on its head. Lao PDR would be perceived as a country being landlinked rather than landlocked. Perhaps not surprisingly, public and private sector stakeholders in Lao PDR are interested in understanding the potential impact of its development on Lao PDR's regional connectivity. Interest in particular lies in the line's potential to position Lao PDR at the center rather than the periphery of an integrated regional railway network. However, the estimated US\$ 6.7 billion cost of the scheme, given the challenging terrain, suggests the project may in fact be non-viable.

2.3.7 National Coordination

52. Effective coordination of national agencies and private sector service providers is fundamental to modern logistics. Traditionally, Lao PDR has lacked an effective coordination mechanism to address trade facilitation constraints in an effective manner. The authorities have within the past few years established a National Transport Facilitation Committee, and – more recently – taken steps to also establish a National Trade Facilitation Secretariat. The establishment of a National Trade Facilitation Secretariat under the National Steering Committee for Economic Integration (NSCEI) which is chaired by the Deputy Prime Minister, and co-chaired by the Minister of Industry and Commerce is an important step in this direction. Experience from other countries, including Thailand, suggests such committees, with the right level of leadership can be strategic in optimizing the development plans of the various entities that play a role in logistics infrastructure and service provision. The National Trade Facilitation Secretariat, as the national coordinating body for trade facilitation, is charged with managing implementation of the

new National Trade Facilitation Strategy and Action Plan recently approved by the government in 2011. The strategy may provide an opportunity to define an explicit corridor focused approach.

2.3.8 Inland Container Depot (ICD)

53. Lao PDR does not have an Inland Container Depot and the only ICD operating in Thailand is Lat Krabang. It was built to serve the container

traffic in Laem Chabang port, which is about 117 km from the ICD. It is linked to the port by both highway and rail. The latter was recently increased to a double track. The ICD handles approximately 25 percent of the containers unloaded in Laem Chabang port (Table 6) and 23 percent of the containers delivered to the port.

Table 6: Laem Chabang Traffic 2011-2012 (mn. TEU)

	2011			2012		
	Laden	MTY	Total	Laden	MTY	Total
Inbound	1.53	1.28	2.81	1.82	1.06	2.88
Outbound	2.92	-	2.92	3.05	-	3.05
Total	4.45	1.28	5.73	4.87	1.06	5.93

54. The number of import boxes received at the ICD increased slightly from 2011 to 2012 while the number of export boxes sent from the ICD declined as shown in Table 7. The proportion of these containers transported by rail between the port and the ICD is about 28 percent. There was a decrease

in the rail share for imports from 2011 to 2012 due largely to the delays in loading containers on to the rail wagons in Laem Chabang Port. At the same time, there was an increase in share of exports as a result of the increase in frequency of trains.

Table 7: Traffic Volume and Mode Share for Lat Krabang (TEU)

	TEU Using Lat Krabang ICD			Rail Mode Share	
	2011	2012	Incr. / Decr.	2011	2012
Import	695,875	706,611	+1.5 percent	25	23
Export	741,441	694,102	-6.4 percent	29	35
Total	1,437,316	1,400,713	-2.5 percent	27	29

55. Currently, 28-32 trips are scheduled daily in each direction between the ICD at Lat Krabang station and the Laem Chabang station. The trains have 34 wagons with a capacity of 68 TEU. The scheduled travel time is 3 hours implying an average speed of about 40 km. However, the double track has yet to

be extended from Laem Chabang station to the port thus creating a bottleneck. Furthermore, a shortage of locomotives and bad condition of the available locomotives causes delays and cancellations of train schedule. There is a plan to add 10 locomotives and 300 chassis to the fleet.



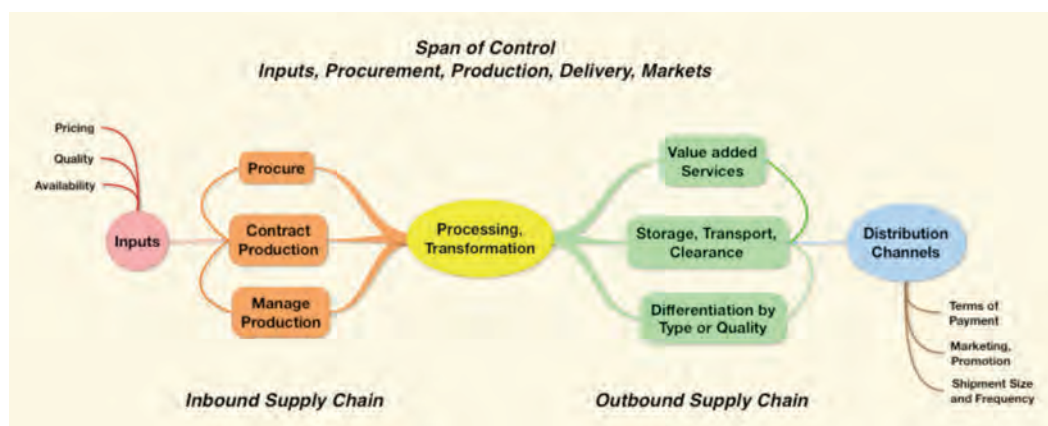
Supply chain analyses

3 Supply chain analyses

56. This section extends the previous analysis of logistics services and corridor performance by examining the performance of three export supply chains, coffee, garments, and fresh and processed vegetables, that utilize the corridor and logistics services. The analysis utilizes the Phase 2 Trade and Transport Facilitation Assessment developed by the World Bank. This assesses the performance of specific supply chains and quality of the logistics services used in these supply chains. It combines background research and interviews with supply chain participants to identify current constraints on supply chain performance that limit export competitiveness as well as opportunities for improving the quality of logistics service and the structure of the supply chains to increase competitiveness.

57. The primary objective of performing this assessment was to identify initiatives to improve export competitiveness through improvements in logistics, and, in particular, to inform the government's trade and integration strategy¹¹, and the World Bank's next phase of trade related assistance to Lao PDR (development policy and investment lending). The core strategies considered for improving export competitiveness are: (i) increased efficiency to reduce the delivered cost for existing trades; and, (ii) introduction of value addition activities to diversify the products and increase the average value of the goods being exported.

Figure 15: Linking inbound and outbound flows in supply chain organization



58. The analysis assessed how enterprises can reorganize their supply chains both the inbound supply of inputs and the outbound supply of goods (Figure 15). The performance was evaluated based on four key areas:

- Time, cost and reliability of end-to-end movements;
- Uncertainties associated with individual activities in the supply chain;

- Flexibility and transparency of these supply chains; and,
- Transactions used to link the supply chain activities and to transfer risk among the participants.

¹¹ A new Diagnostic Trade Integration Study has recently been prepared by the Ministry of Industry and Commerce as an update to the 2006 DTIS.

3.1 Methodology

59. The assessment was conducted in four steps over a six-month period. The first step was a review of the issues facing the logistics industry and identification of commodity-specific trades to be surveyed. Trades were selected based on their size and contribution to the country's trade, both now and in the future. These were:

- Coffee – Lao PDR's largest cash crop and agricultural export with potential for increase in both volume and product value;
- Garments – the largest manufacturing export and major source of employment in the country with potential for increase in volume; and,
- Fruits and Vegetables (both fresh and processed) – a promising area of growth in agricultural export but involving significant logistics challenges.

60. Firms were selected for interviews based on size¹², markets served, supply chain structure, and accessibility.¹³ For each trade, firms were selected to include different categories of products.

61. The second step involved the preparation and pre-testing of survey instruments, selection and mobilization of the survey team, and arrangement of field logistics. The instruments were prepared using modified formats provided in the TTFA manual. These were modified to reflect the situation in the country as well as specific objectives of the assessment. The principal adjustment was give greater emphasis to interviews with the firms that organize the supply chains and less to the firms that provide the logistics services used in the supply chains. The team selected to interview these firms were chosen according to their familiarity with the commodity-specific trades as well as with trade logistics. A smaller team of experts was recruited to interview providers of transport and freight forwarding/customs clearance and trade finance services. The teams participated in a three-day training course that covered the analysis of different aspects of trade logistics and the

structure of the survey instruments. The instruments and interview techniques were pretested with a firm not included in the sample. Although the members of the team were fluent in English, the questionnaires were translated to ensure consistency in the interviews.

62. The third step involved fieldwork, which was conducted in two stages. Two trades were surveyed in each phase. The interviewers were sent out in pairs in order to ensure a broad understanding of the firm's activities and to improve interview dynamics. Four interviews were conducted with each firm responsible for organizing the supply chains. The first meeting was with the general manager to introduce the study team, review the approach and discuss the firm's business model. The second meeting was with the company's logistics manager to discuss the organization of supply chains. The third meeting was with the head of finance to examine the cash flows and finance associated with the firm's trade activities. The final meeting was a recap with the general manager to discuss strategies for enhancing the efficiency of operations and improving trade competitiveness. Where required, additional interviews were held with the firm's principal suppliers and buyers. Between the two phases, meetings were held to discuss preliminary findings, finalize field notes and prepare essays to document their findings. The interviews with service providers were conducted in parallel with the interviews with the firms.

63. For the final step, the survey results were analyzed. This included preparing for each trade:

- A summary of the responses of the firms to structured questions;
- Essays describing problems and possible initiatives for improving performance;
- Flowcharts for the supply chains of some of the firms; and,
- Cash flows for some of the firms.

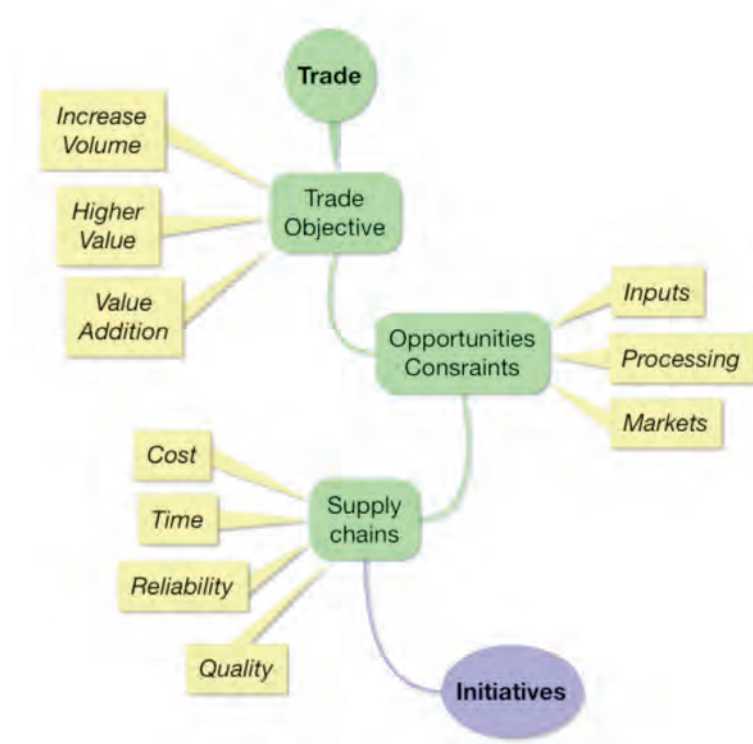
¹² Larger firms were chosen since smaller firms usually face additional hurdles because of their size rather than external factors

¹³ The firms selected had to be willing to participate in multiple interviews

64. The survey findings were combined with earlier efforts to map out the characteristics of each trade including their business models, inbound and outbound supply chain configurations, extent of control over supply chains, cash-to-cash cycle and financing. Reference was also made to earlier studies concerning the availability and performance

characteristics of the logistics services used in these supply chains. Based on the results, policy recommendations were developed for both the private and public sector including public-private initiatives. Preliminary findings were presented at industry-workshops followed by a more detailed discussion with the associations representing each of the trades.

Figure 16: Measures to improve chain performance



65. The identification of various initiatives began with the trade objectives and current constraints as shown in Figure 16. Different options for improving supply chains performance were then considered. Some of the initiatives considered included:

1. Increased coordination among supply chain participants;
2. Integration of supply chain components and elimination of intermediaries;
3. Introduction of value-addition logistics in the supply chains;
4. Improvements in quality of logistics services;
5. Increased use of ITC;
6. Improvement in performance of trade corridors and production clusters; and,

66. Several initiatives were considered. The types of initiatives that support these opportunities included:

1. Technical assistance;
2. Standards and contractual relationships;
3. Regulatory reform;
4. Financial instruments tailored to specific requirements;
5. IT platforms; and,
6. Investments in infrastructure.

3.1.1 Key concepts

67. The analysis of the trades is organized around two key concepts. The trade itself is defined as an inbound supply chain linking the production of raw materials with the processing of these materials and an outbound supply chain linking processing with the delivery of finished products to foreign markets. The activities in these chains were limited to those controlled by actors in the country. For this purpose, the entities responsible for organizing the supply chains (the organizing principals) were identified. In most cases, these entities were involved in the transformation of the inputs. The activities of the organizing principal were categorized according to their business model and span of control over both inbound and outbound logistics.

68. The two key concepts are the business model and the span of control. The business model refers to the transformation performed on the inputs and the characteristics of the outputs produced. The span of control refers to their involvement in the activities of the inbound and outbound supply chains. Separate business models were used for manufactured goods and agricultural products. For the manufactured goods, the standard delineation is based on value addition not only in physical terms but also through design and marketing. For agricultural products, value-added includes processing, packaging, and branding.

69. For each of the trades there is a mix of business models being applied and a gradual evolution towards those providing more value-addition. The assessment addresses the organization of both inbound and outbound supply chains. Specifically it considers the extent of control of the organizing principle over the activities within the supply chains. This will usually increase as the business model evolves in order to:

- Insure a more regular reliable flow of goods through the supply chain;
- Improve the quality of the inputs; and,
- Select distribution channels for specific markets.

70. The span of control has two dimensions: (i) how far the involvement extends upstream in the activities of inbound supply chains and downstream in the activities of the outbound supply chains; and, (ii) the mechanism used to control these activities. The mechanisms range from direct investment and operational control to restructuring the transactions and exchange of information. The latter includes:

- Simplifying the transactions.
- Improving enforcement of contracts, and.
- Providing more flexible financial terms to ensure reasonable distribution of the benefits among the participants in the supply chains.

3.2 Coffee supply chain

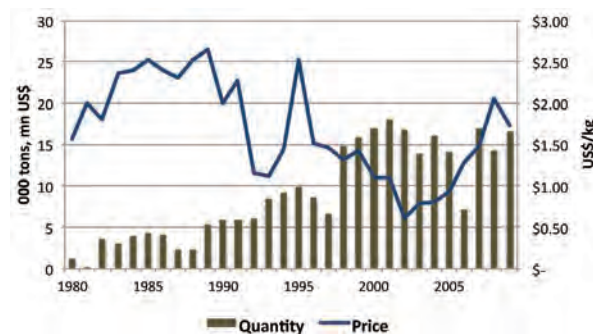
3.2.1 Production and trade

71. Coffee is the largest agricultural export from Lao PDR. Coffee production has increased since the mid 1980s as a result of the continued expansion in the area planted as well as through increasing yields (Figure 17). For the last two decades, the estimated output grew at an average annual rate of 11.7 percent. Despite this growth, Lao PDR remains a small producer in terms of the world market with an output equal to only about 4 percent of that for Vietnam. The level of exports in recent years has been about 18 thousand tons although an increase to 24 thousand tons was reported for 2011¹⁴ (Figure 18). Of the approximately 50 coffee exporters, Lao PDR ranks in the middle just behind Thailand and is comparable to Rwanda and Burundi.

Figure 17: Lao PDR coffee production



Figure 18: Lao PDR coffee exports



Source: FAOSTAT

72. The area in Lao PDR used for coffee planting has expanded by 160 percent over the last two decades, covering an area in 2010 estimated by FAO to be 45,000 hectares. While data on total production of Lao PDR coffee is not available,¹⁵ it is assumed to be 20-22 thousand tons based on export data. This is much less than estimated by FAO because:

- Not all of the area originally planted in coffee is still used for this purpose; and,
- About ¼ of this land is not producing because the coffee plants have not reached maturity and the plants on some of the land have lost productivity due to age.

73. Coffee is grown on the Bolaven Plateau, which provides conditions that give Lao PDR coffee its unique flavor¹⁶. Approximately 80-85 percent is produced in the Champasak Province and most of the remainder in the neighboring provinces of Saravan, Sekong, and Attapeu. It is in these provinces that most of the future expansion in coffee production is expected to take place once roads and other infrastructure have been developed.

¹⁴ The trade figures are taken from ITC statistics based on data provided by importers (mirror data).

¹⁵ FAO imputes a value from sample data on yields and an inventory of land planted in coffee which produces a number that is double the amount exported

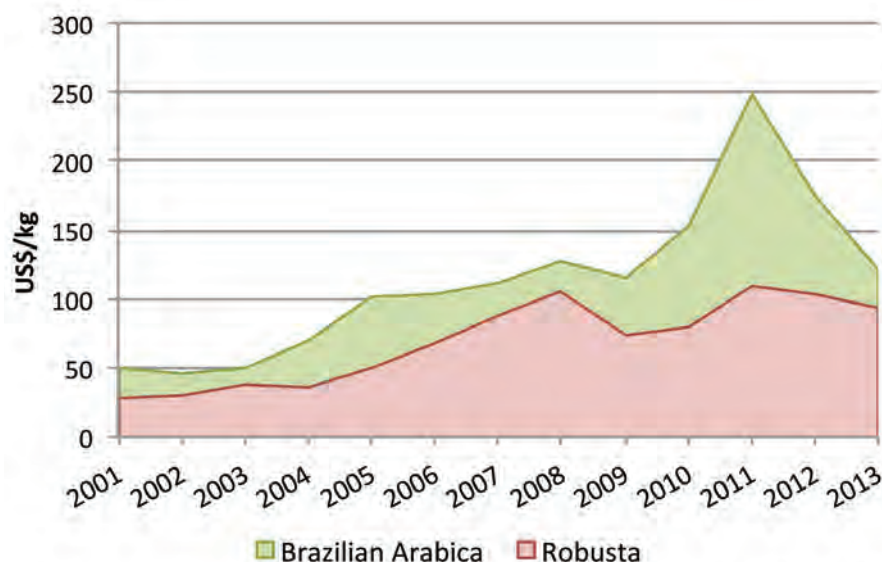
¹⁶ Volcanic soil at an altitude of 1300 meters with good drainage and moderate temperatures.

74. Lao PDR produces primarily Robusta because of its resilience against diseases¹⁷. However, the increasing price differential between Arabica and Robusta (Figure 19) and higher revenue per hectare has induced farmers in Lao PDR to plant Arabica. This transition has been facilitated by using intercropping in order to avoid a lull in output during the five years before the plants are mature. As a result, Arabica's share of total coffee production has risen from 1 percent in the 1990s to its current level of 35 percent.

75. Coffee remains Lao PDR's number one agricultural export product with a value in 2010 of about US\$ 40 million. The value of coffee exported from Lao PDR has increased three-fold over the last two decades due to increased production and rising prices. However, there were significant fluctuations

caused by changes in international prices. Increasing prices not only encourage greater production but have also led to the establishment of new plantations and the entry of foreign-owned trading companies to compete with local exporters. The 5-7 year period coffee plants require to reach maturity causes lags in the changes in price, whereas yields respond more rapidly to changes in price. The most rapid growth occurred in the second half of the 1990s in response to the run-up in prices during the first half of the decade. The decline in prices during the second half of the 1990s caused a decline in production in the first half of the next decade that continued until 2002 when prices recovered. This recovery had two impacts: first, it led to a sharp increase in yields; second, it encouraged foreign investment leading to a rapid growth in the area harvested in the second half of the decade.

Figure 19: International green bean prices



Source: ICO

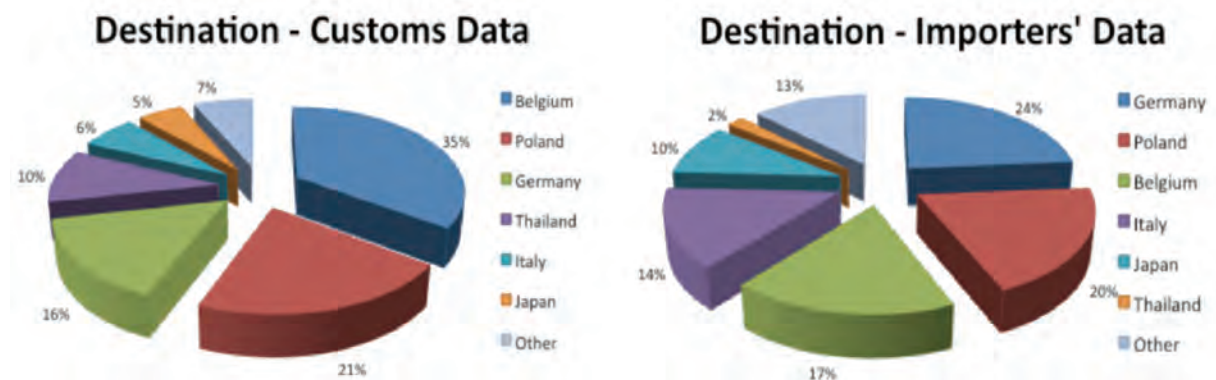
76. The principal market for Lao PDR coffee is the EU, which accounts for about 2/3 of the total export value. Another 19 per cent is sold to Thai and Japanese traders. Although the reported exports to Vietnam are relatively low, the amount actually crossing the border is thought to be as high as 30 percent of total production.

¹⁷ Lao PDR coffee economy, p. 5

77. Based on mirror data there are differences in the coffee export volumes reported by Lao PDR customs and by destination countries (Figure 20). The first set of data reports the destination of the buyer, which is an international trader, while the latter data reports the final destination, which is generally the roaster. Although the top three destinations are the same in both sets of data, Germany, Belgium and Poland, the order is different. Similarly the shipments to Thailand reported by Lao PDR customs are much larger than those reported by Thai customs since most of the beans are re-exported. A different situation arises with shipments to Vietnam. Very little

is reported by Lao PDR customs because the trade is informal. Importing countries also report very little since the beans are shipped together with Vietnamese beans and reported as originating in Vietnam. Overall, the quantity in tons reported by importers is 10 percent greater than that reported by Customs suggesting additional leakages. It is likely that the total amount shipped out of Lao PDR is about 20 million tons. The destination of the exports varies significantly from year to year as shown in Figure 21. This is done to a lack of regular supply contracts and is consistent with spot market trading of a commodity.

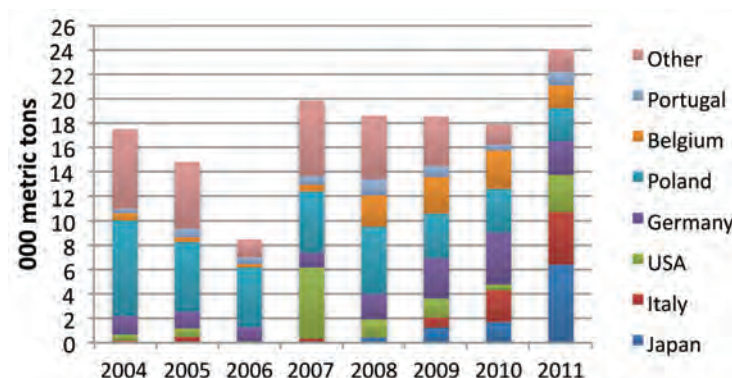
Figure 20: Destination of Lao PDR coffee exports in 2010



Source: Lao PDR Customs data

Source: UN Comtrade

Figure 21: Destination of coffee exports



3.2.2 Industry structure

78. The Lao PDR coffee industry includes a number of participants starting at the farm level, as shown in Table 8. The overall performance of the coffee supply chain depends on the relations and level of integration of the activities of different players. The growers include smaller holders with 1-3 hectares under cultivation, large farms with 4-10 hectares and six plantations with more than 100 hectares. The growers perform varying amounts of post-harvest

processing before selling to wholesalers. The wholesalers act as district level aggregators and provide additional processing. Some export the coffee beans directly but most sell to exporters who store the beans before selling them to international traders. A few of the exporters perform additional processing and sell packaged, ground and instant coffee. Different processing methods are used for Robusta and Arabica coffee as outlined below.

Table 8: Participants in coffee supply chain

Agent	Type of agent
	Individual farmers
Producer	Farmers' group
	Private investors
Middlemen	Village buyers
	Wholesalers
	Wholesaler-exporters
Exporters	Large wholesaler-exporter-roaster
	Planter-exporters
Importers	International Coffee Traders

79. Robusta coffee is dry processed and the beans are sold as unwashed. The cherries are dried by the farmers on platforms, often on open ground. Around half of the farmers sell the dried-cherries directly to exporters whereas the others use modified rice hullers, to produce beans that are sold unsorted.

80. Arabica coffee is processed almost exclusively using wet processing (Table 9). Most farmers sell the cherries directly to wholesalers for processing although in some cases they sell parchment produced using manual pulpers and plastic buckets for washing.

Table 9: Processing of coffee

Process	Product	Yield
<i>Wet processing of Arabica</i>		
Sorting cherries by floating	First quality red cherries	97 percent
Mechanical pulping	Parchment with mucilage	55 percent
Fermenting or mechanical removal of mucilage	Parchment	83 percent
Washing	Parchment	100 percent
Drying on racks	Dried parchment	50 percent
Hulling and polishing	Green beans	
Sorting and grading	Sorted green beans	
<i>Dry processing of Robusta</i>		
Sorting and cleaning	Cherries	
Dry on platforms or with mechanical dryers	Dried cherries	
Hulling and polishing	Green beans	
Sorting and grading	Sorted green beans	

81. Due to the small size of the farms, village buyers act as middlemen purchasing Arabica and Robusta cherries at the farm gate and selling unsorted beans to wholesalers. They operate either as collectors for specific exporters or as independent traders selling to the highest bidder. Many have drying areas and hulling equipment for dry processing of Robusta and equipment for wet processing of Arabica cherries. Village buyers and larger farmers deliver the cherries and beans to the wholesaler's warehouse. In some cases, the wholesalers use their own truck for collection.

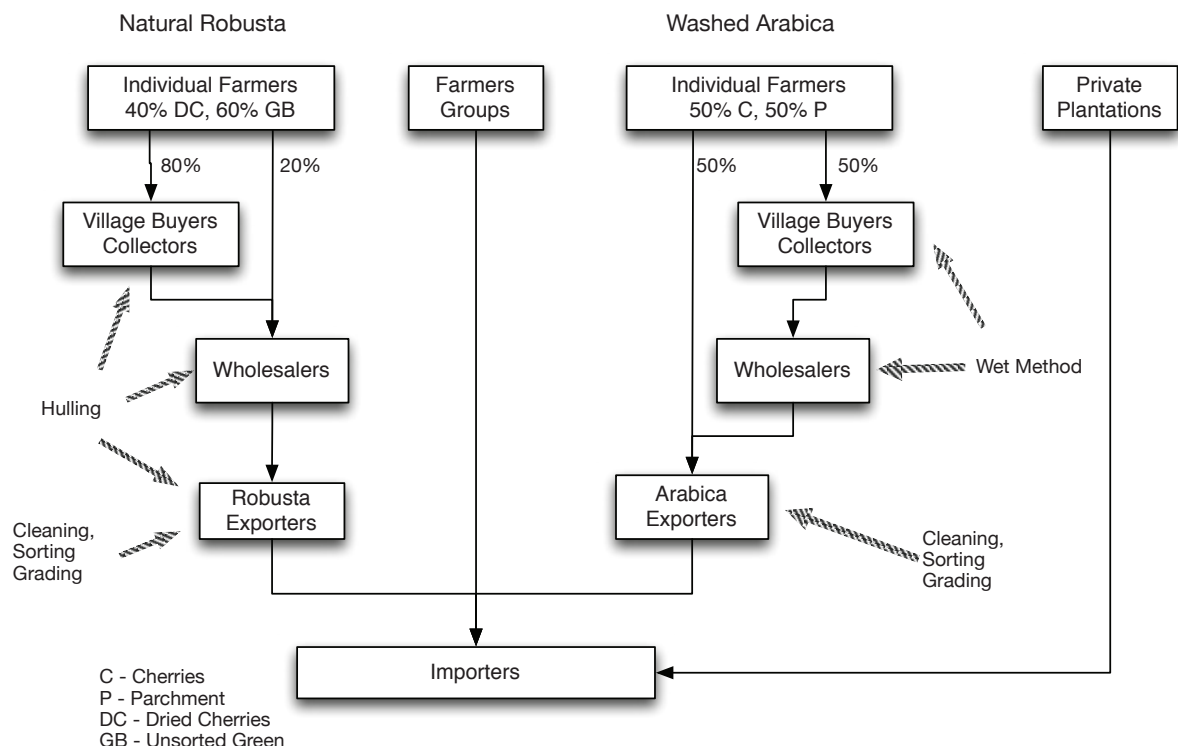
82. The wholesalers are traders in agricultural products that specialize in coffee. They operate at the district level buying the output from 30-50 villages. Some buy only unsorted green beans while others also purchase dried cherries and parchment and process them in their warehouses. These wholesalers typically handle from several hundred to several thousand tons per year.

83. Exporters purchase the green beans from farmers' groups, large coffee farmers and wholesalers and usually provide transport to their warehouse. The exporter's warehouses have cement

drying areas to re-dry coffee beans if necessary. Some of the larger exporters also have mechanical dryers. The coffee is cleaned and sorted manually to reduce the percentage of defective beans. Relatively few exporters have equipment to accurately sort by size, density and color. The exporters sell the green beans to the international coffee traders, many of whom have representatives in Pakse.

84. Over the last decade, a new system has emerged which bypasses the wholesaler. In the traditional system, processing begins when the exporter receives an order from the buyer. The exporter then contacts the wholesaler who notifies the village buyer who purchases cherries from the farmers. Under the new system, exporters construct their own warehouses and coffee processing units near production areas and collect direct from farmers and collectors. In some cases, they also grow the coffee. The increase in exports of Arabica with the requirement for wet processing and better control on quality has encouraged this trend. The alternative paths through which coffee moves from the farm to the international buyers are shown in Figure 22.

Figure 22: Coffee supply chains



85. A small number of exporters dominate the Lao PDR coffee market. The ten largest companies are part of the Lao PDR Coffee Association (LCA), a group established by Government that all coffee exporters must join. They account for 70-75 percent of exports and one exporter accounts for a majority of this. These companies dominate the buying of coffee at every stage in the chain - fresh cherries, dried parchment and milled green beans.

86. Improvements in information available to farmers as well as excess demand over supply help to offset the impact of market concentration among buyers. Improvements in farmers' access to markets through mobile phones for checking prices and use of trucks and motorbikes for delivering the crop to different traders have offset the impact of this high market concentration. The greater transparency in the transactions has resulted in the farmers obtaining 70-80 percent of world price for Robusta versus 57 percent a decade earlier. Competition has also increased with the entry of large foreign-owned firms that operate plantations, process the cherries and export the beans. Two plantations are US-based but the other five are from the region (India, China, Singapore, Vietnam, and Thailand). All were established in the last six years. They are still relatively small but have plans to expand their plantings to a thousand hectares or more. Most have modern processing facilities and access to various international distribution networks.

3.2.3 Business models

87. Exporters are responsible for organizing the coffee trade. Exporters have extended their activities upstream by adopting new main business models. In addition, the traditional traders have assumed responsibility for the functions formerly performed by the wholesalers. The four business models that are prevalent in the Lao coffee sector can be summarized as follows:

- a. Traditional traders buy green beans, provide additional drying and polishing, bag and store the beans and sell them to foreign buyers in response to individual spot purchases. This model requires a network of wholesalers and village buyers as described above.

- b. Wholesaler-exporters operate as wholesalers buying and processing fresh and dried Robusta cherries and Arabica cherries and parchment. This model requires a network of village buyers to make spot purchases from the farms. Sales to foreign buyers are on a spot basis.
- c. Suppliers obtain a regular supply of cherries through contracts with large farms and farmer groups and through the operation of their own coffee plantations. They also use spot purchases to supplement the regular supply. Sales to foreign buyers are primarily contracts for multiple shipments, although a portion involve spot purchases.
- d. Plantation owners process their cherries and sell the beans to the foreign buyers directly under contracts for multiple shipments. This model has the additional feature that the owner can produce branded and unbranded products for distribution direct to retail outlets.

88. The first and second models account for a majority of the exports since an estimated 15,000 households plant 1-3 hectares and produce about 80 percent of the coffee beans. The largest exporter in Lao PDR has adopted the second model. The foreign-owned firms are introducing both the third and fourth models. Some of the local plantations have also applied the fourth model and produce branded products.

89. The strategies for inventory management differ depending on the business model. The advantage of the first model and, to an extent, the second is that inventories are kept to a minimum, which reduces the required working capital. In contrast, the third and fourth models require a large inventory to fulfill contracts for multiple shipments. Their advantage is that they create opportunities for improving the quality of the coffee by controlling all parts of the inbound supply chain.

90. The exporters sell to international coffee traders primarily in Europe. Most of the major international traders have buying agents in Pakse to arrange the purchases. Some of the foreign firms operating in Lao PDR are affiliated with international traders.

3.2.4 Value proposition

91. While Lao PDR coffee is of relatively high quality, the techniques for post harvest processing are poor and there is minimal sorting and grading throughout the supply chain. Lao PDR does not have any national standards for grading coffee and the quality control certificate issued by the government does not have international validity. Attempts by exporters to introduce standards have been limited. Some exporters, especially the foreign firms, have invested in equipment for separating coffee beans based on quality differences but most rely on manual sorting of coffee beans and export them as mixed quality beans (FAQ- Fair Average Quality). As a result, the price is discounted from the international price. Figures from 2005 indicated a discount in the price of Robusta of about 15 percent relative to Grade 3 Robusta from Vietnam.¹⁸

92. The newer business models seek not only to improve the quality of the exported beans, but also to develop a consistent and unique product that commands a premium relative to the international commodity price.

3.2.5 Supply chain structure and performance

93. An illustration of the coffee supply chain from the farm to the port of loading is shown in Figure 23. The participants involved in the traditional system are shown on the right side of the chart. The modern systems reduce the number of participants as indicated by the shaded boxes. The points in the supply chain where orders are initiated are shown on the left. These include:

- Traditional spot purchases in which the order initiates the collection and processing of the cherries;
- Purchase orders as part of a contract for multiple shipments which initiate additional processing of cherries to supplement the beans in inventory; and,
- Purchase orders for retail products, which initiates processing of the beans stored in the warehouse.

94. The inbound supply chain begins with the harvesting of the cherries and concludes with the delivery of the green beans to the exporter, however, the exporter is increasingly involved in the production of the beans. The harvesting of cherries occurs during November and December for Arabica and from February through March for Robusta. For Robusta, the production of dried cherries using solar drying requires 3-4 weeks. The time for hulling, additional drying and polishing requires a few days to a few weeks depending on the amount and method of drying. For Arabica, the time for wet processing is two to three weeks with solar drying but can be reduced to a week with mechanical dryers. The exporter then puts the green beans in 70 kg bags and stores them in his warehouse for up to one year.

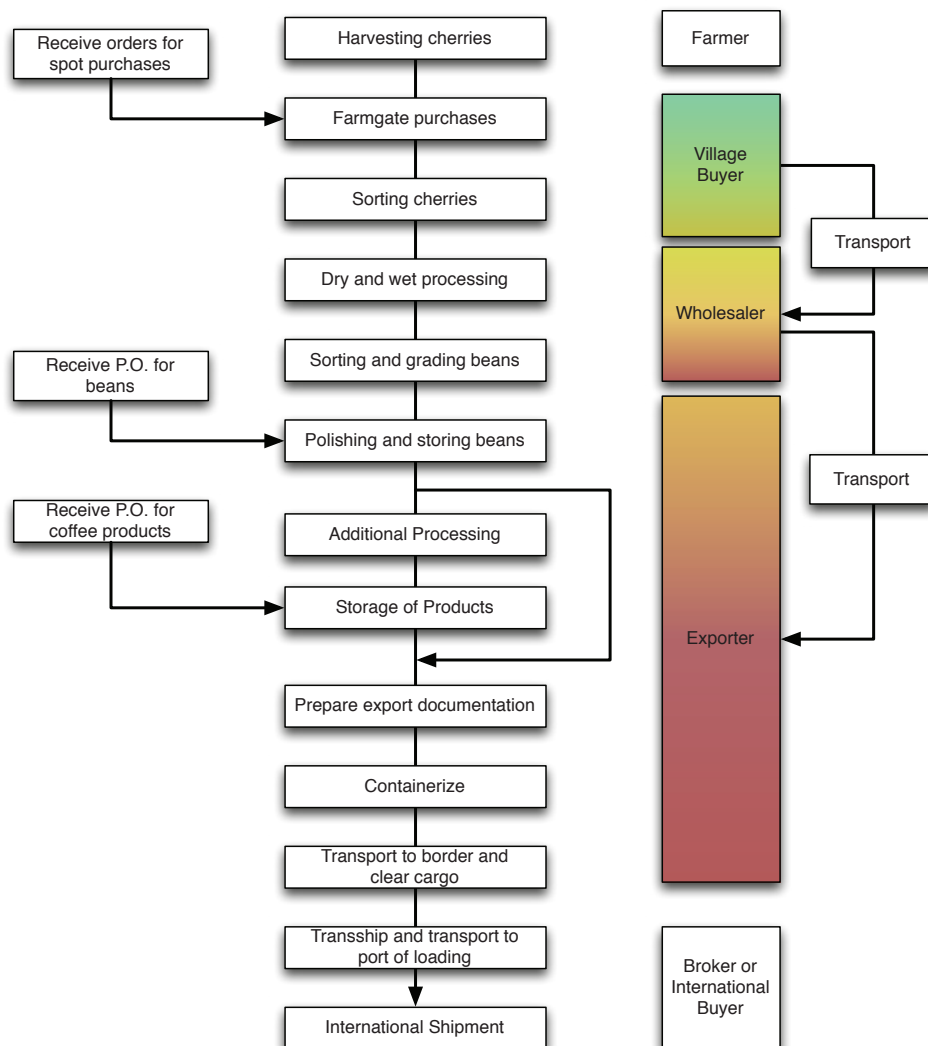
95. The outbound supply chain for coffee beans begins with the processing of the documents for shipping and ends with the transfer of the cargo to the buyer's representative. Upon receiving an order, the exporter prepares the shipping documents, which takes about three days. The exporter then loads the bagged beans into containers at the warehouse, transports the coffee to the border and clears the cargo. At the border, the container is transshipped to a Thai truck for movement to Lat Krabang or Bangkok port where it is delivered to the nominated forwarder or shipping line. The movement from the warehouse to the port takes 2-3 days.

96. Transactions for the inbound supply chain are less formal than transactions for the outbound supply chain. For the inbound supply chain, the transactions are based on verbal agreements between farmers, village collectors and wholesalers. Most involve cash payments at the time of receipt of the goods. For the outbound supply chain, there is a formal contract. The beans are shipped under FCA or FOB terms depending on who takes receipt of the beans. The payment for the beans is done in stages with an advance payment made at the time the order is placed and a subsequent payment on CAD terms.¹⁹ Both payments are made through TTs.

¹⁸ Anthony Marsh, et al

¹⁹ The importer submits a price quotation and a letter of request through its bank, which then contacts the exporter's bank with a request for the shipping documents (commercial invoice, packing list, phytosanitary certificate, bill of lading and C/O). Once the correct documents are received by the importer's bank, the payment is transferred to the exporter's bank.

Figure 23: Coffee supply chain and participants



97. In the traditional system of small farms and middlemen, the scale of purchases is determined by the available working capital. Exporters usually receive advances from the buyers and have access to loans from the commercial banks. The wholesalers receive advances from the exporters and also have access to the loans from the commercial banks. The village buyers rely solely on advances from the wholesalers since they do not have access to loans. The farmers have access to credit from the purchaser of their cherries or parchment but most of this is short-term and expensive.

98. The modern system provides a more formal relationship between the farmers and the buyers of their cherries or parchment. In some cases, this is accompanied with advances for the purchase of inputs and micro-credit to cover expenses during the harvest season.

3.2.6 Performance of firms surveyed

99. For this survey, four of the larger coffee exporters were selected. Three of the four produce Arabica. Two operate plantations, one domestic and one foreign owned. They handle volumes between 12 and 80 thousand tons. One company purchases parchment through contracts with the farmers groups. Another obtains parchment from individual farms, village buyers and their own plantation. The third company produces green beans from its plantation and uses these to produce retail products. The last company is a smaller trader.

100. The cherries and parchment are delivered by the farmers and village buyers who are paid cash on delivery based on the prevailing spot price. The larger firms receive deliveries of 10-25 tons of cherries or parchment from the wholesalers and farmers' groups, whereas the smaller trader receives a shipment as small as two tons from the village buyers.

101. Nearly all sales are to foreign traders although one plantation sells to retailers and roasters. The typical time from confirmation of order to delivery to the loading port is 60-90 days. This includes the storage time for the green beans following processing. The period is longer for one of the plantations, about 180 days because orders are accepted prior to harvest and cover multiple shipments. The small trader delivers the coffee in less than a month. Order fulfillment is not a significant problem although one of the firms indicated that about 5 percent of the shipments were delayed due to problems with processing and lack of space at the warehouses.

102. All firms export bagged green beans in containers, with typical shipment sizes ranging from 2-12 TEU (a TEU holds about 19 tons). Three of the four firms load the container at the factory. Current values per TEU are about US\$ 40,000 for Robusta and about US\$ 100,000 for Arabica. Three of the four firms arrange their own domestic transport while over-

seas shipments are arranged by forwarders selected by the foreign buyers. The documents required to export coffee include a certificate of origin, SPS and technical certificates, and customs declarations. Obtaining these does not create significant delays but does introduce uncertainty in the delivery schedule.

103. The containers used to transport coffee are delivered empty from Bangkok port to the warehouses in the Bolaven plateau then loaded and returned to Bangkok port. The cost including transport, clearance and loading at the port is approximately 45,000 Baht per container (US\$ 1,500). At current prices, this amounts to 1.5 percent of the price of Arabica green beans and 3.8 percent of the price of Robusta green beans. The buyer pays the ocean shipping costs. For the EU, costs amount to about US\$ 2,000 per TEU. This is exclusive of cargo insurance, which is provided by the buyer or the transport company.

104. Payments for exports are made through TT at the time the goods are loaded onto the vessel. Some firms require letters of credit from their buyers but this applies primarily to orders from new buyers. The transactions are made using telephone, fax or e-mail. All of the firms have a line of credit with a domestic bank except for the foreign-owned plantations, which have access to working capital through their parent companies. Some wholesalers and exporters with contracts to buy cherries at prevailing prices use the forward market to hedge their contracts.

105. Two firms indicated that their competitive strategy was based on the quality and uniqueness of their product while the other two based it on their costs. In order to grow their revenues, all are trying to improve their supply of inputs. The principal sources of financial risk are shortages of working capital and price fluctuations.

3.2.7 Objectives and strategies

106. The coffee industry represents a relatively small portion of the country's trade and GDP, but is the major agricultural export in terms of value and generates a significant amount of rural employment. There are three dimensions to the potential for growth in the Lao PDR coffee industry:

- a. Volume produced – expand the area in the Bolaven Plateau allocated for the cultivation of coffee; improve yields and extend plant life through improved agricultural practices and extension;
- b. Value of the coffee – improve management of the processing including sorting, grading and quality control; and,
- c. Value addition - introduce specialty coffees and coffee blends; additional processing and distribution of coffee products.

107. Each of these is being pursued and significant improvements are expected in the short to medium term. While there is potential for substantial expansion of production, the primary objective of this expansion should be to increase the employment and earnings for the rural population.

108. The challenge is to employ a strategy that will increase growth while achieving the objective mentioned above. This suggests a two-part strategy:

- a. First, improve the quality and consequently the value of the coffee exported complemented by some value addition. This effort would be led by the foreign-owned plantations, which have the capital to develop large-scale plantings,²⁰ the equipment to ensure the quality of the coffee beans, the management to provide a continuous supply of coffee to regular customers and the scale and marketing experience to promote specialty blends and branded products.

- b. Second, improve the quality and yield of coffee produced from smallholdings. This requires a change in the role of the exporters from a trader of a low value commodity to the organizer of production that meets or exceeds an agreed standard. This implies a more direct relationship between the exporters and growers, a more efficient system for collection of the coffee and a more effective allocation of responsibility for the postharvest processing.

109. Much of the current cost of production is a result of an inefficient system of production, collection and processing. It is therefore important to restructure the supply chains to increase efficiency of these activities. By achieving economies of scale in processing and improving the quality of the output, the returns to the farmers should increase. Since this will support the growth in production, it will also increase rural employment.

110. An efficient system for the collection of fresh and dried cherries requires a simple system of aggregation backed by a contractual mechanism that allows coordination of the collection activity from the farm. This requires a combination of:

- A contractual agreement that provides advance payment to the farmers for inputs and a market price for their output;
- Partnerships with local leaders to facilitate the transactions between individual farmers and the processors; and,
- Investments in collection points and vehicles to move inputs efficiently from remote villages to processing facilities.

111. Moving to a more efficient collection system involves a variety of complementary steps. It requires a change in farming practices as part of a multi-year effort to build trust between the participants. It requires an ability to work with farmers groups, village leadership, and other organizational structures. This implies capacity for designing and managing logistics networks.

²⁰ Estimated to cost \$10,000 per hectare

112. Even with the expansion in area, yields and productive life of plants, Lao PDR will remain a small producer in the international market and relative to its neighbors. In order to advance beyond the status of supplier of unsorted beans used as a low cost input to blended coffee, the size of the processors/exporters must be large enough to provide effective quality control and to offer a reliable supply of consistent quality to regular customers. At the same time, the exporters must also develop new distribution channels that will provide higher prices for smaller shipments, unique varieties, specialty brands and personalized service. These channels include specialty roasters and high-end food retailers and food service chains.

3.2.8 Implementation

113. Several trends will help the trade grow in volume, product value and value addition; however these trends should be supported by private and public actors. The current trends towards larger farms and plantations, better processing technology, higher yields and more Arabica will enable the trade to grow in volume, product value and value addition. Similarly, the trend towards combining the roles of wholesaler and exporter and efforts to have the exporter purchase directly from village level organizations thus bypassing the village buyers will support improvements in the quality of the coffee beans as well as increasing the return to farmers. Finally, the increase in information available to farmers on spot prices has increased their earnings and brought greater transparency to the market. These trends are expected to continue in response to market pressures, but should be formally recognized by the industry in developing a long-term vision and by government through complementary policy. This support might include a requirement that the firms involved in exporting should also have processing capacity.

114. Complementing these trends is the restructuring of the inbound supply chain specifically with regards to sourcing and processing cherries. Sourcing needs to shift from the farm to the village or farmer's group and from spot purchases to contracted production. Processing, drying and sorting of the coffee beans needs modern equipment to improve the quality of sorted beans. This requires investment at a sufficient scale to achieve economies of scale and implies a reduction in the amount of processing done at the village level²¹. It also requires improved systems for collection of fresh cherries since processing must begin within roughly 12 hours of harvest. Finally, it improvements in quality control measures and better integration of these controls and certification procedures into the supply chain from sorting cherries upon arrival and sorting and grading beans at the conclusion of processing. These changes can be supported by government through loans and other forms of support, but must first be incorporated into a general strategy to transform the business model from trading of poorly processed beans to supplying of quality products to regional and international markets.

115. As part of this strategy, government and exporters/processors could establish a set of standards for grading the beans sold by the exporters. Participation would be on a voluntary basis but would be accompanied by formal certification. This would be part of a longer-term effort to differentiate and brand Lao PDR coffee similar to the approach originally used by Jamaica's Coffee Industry Board to develop and maintain the brand Blue Mountain coffee. The Board monitored and licensed various aspects of the coffee industry including nurseries, farms, processors and exporters. It owned the "Jamaica Blue Mountain" and "Jamaica High Mountain Supreme" trademarks and performed sample tests to protect the integrity of the brand. Since Lao PDR has a much larger export (Jamaica exports only 1500 tons of beans per year), the role of such a board would be more of leadership than licensing.

²¹ This refers primarily to wet processing of Arabica. Dry processing of Robusta can be done with the solar drying at the village level but with better controls on quality and hygiene

116. The government should also work with the private sector in developing a joint training program for small holders. This effort would combine the research and extension programs developed by the government with the private sector's management capabilities and knowledge of what skills are needed. The Southern Agricultural and Forestry Center (SAFRC) located on the Bolaven Plateau could serve as the center for this effort while continuing to test new hybrid coffee plants that could be introduced. The delivery of this training could then be combined with efforts to establish farmers' groups and introduce production contract.

117. Efforts to support investment in new processing equipment should be complemented by the introduction of new financial instruments by commercial banks to support the working capital requirements of both farmers and processors. These might include:

- Lending to smallholders at concessionary rates backed by guarantees from exporters;
- Loans to cover the cost of inventory guaranteed by warehousing receipts; and,
- Access to future trading to hedge risk in price adjustable contracts used for contract farming.

118. The government should also work with the industry in completing the land use plan for the Bolaven Plateau that includes areas for the expansion of coffee cultivation. The plan would indicate how the government plans to issue concessions and the opportunities available to foreign owned firms.

119. The development of new distribution channels requires market research and increased use of new contractual arrangements including B2C transactions. The government can assist this effort through facilitation of international financial transactions and financial support for the market research.

3.3 Garments supply chain

3.3.1 Trade

120. The Lao PDR garment industry started production in the early 1990s and since then exports have increased steadily reaching US\$ 242 million in 2010 despite a sharp decline in 2009 due to the financial and European debt crisis (Figure 24). The recovery in 2010 can be attributed in part to a relaxation of the rules of origin requirement for Lao PDR exports to the EU²². Growth in exports continued in 2011 despite a shortage of raw materials as a result of the flooding in Thailand.

121. Lao PDR garments account for a miniscule share of global trade and this share has declined over the past decade despite a temporary peak in 2010 (Figure 25). Exports are less than 7 percent of the amount exported by Cambodia and less than 2 percent of Vietnam's exports.

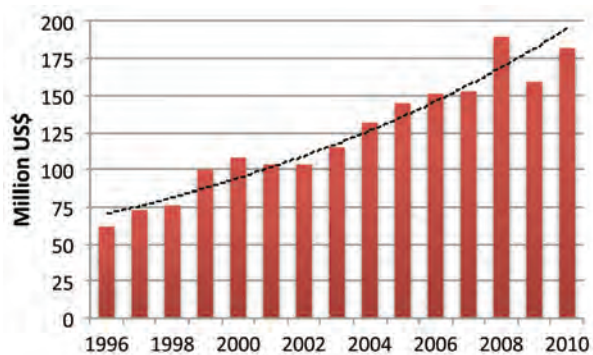
122. The contribution of the garment trade to Lao PDR GDP has declined as a result of efforts to diversify the Lao PDR economy and the natural resource boom that began in 2005. Trade in garments as a share of exports has decreased from almost 40 percent in 2004 to 14 percent in 2010 due to the relatively slow growth in garment exports and the very rapid growth in the hydro and mining exports.

123. The principal competitors in the garment trade are neighboring countries, Cambodia, Thailand, Vietnam and China, as well as India and Bangladesh. However, in the case of Thailand there is a more symbiotic relationship as many of the foreign investors in local garment factories are from Thailand. Lao PDR has a competitive advantage in wages but falls short in productivity and scale.²³ The increase in wages in China has caused some migration of production to Lao PDR in recent years, but this involved small-scale factories producing more labor-intensive products, e.g. men's suits. The advantage in wages is likely to diminish due to a growing labor shortage, a significant constraint limiting the ability of the Lao PDR garment producers to compete for the larger orders and the migration of workers to Thailand where wages are significantly higher.

²² Under the new EBA rules, fabric and yarn can be sourced from EU, ASEAN, SAARC, and ACP.

²³ For example, a study conducted by the National Statistics Center in 2006 found that the hourly wage in Lao PDR was considerably lower than in China (US\$ 0.12 vs. US\$ 0.68)

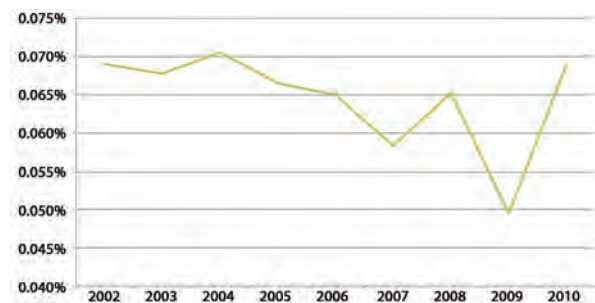
Figure 24: Garment exports



Source: ALGI

124. The most important destinations for garments are Germany, UK, USA, France, and the Netherlands (Figure 26). The EU is the most important destination due primarily to duty-free access to the EU market under the “Everything But Arms” Agreement. This initiative is estimated to provide a

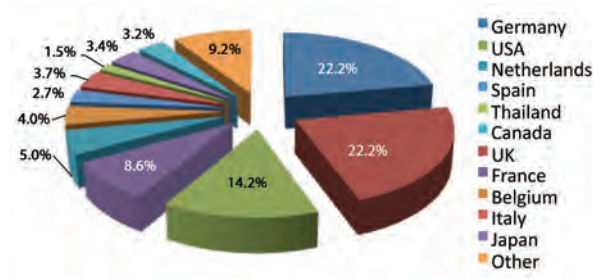
Figure 25: Share of world garment trade



Source: UN Comtrade (mirror data)

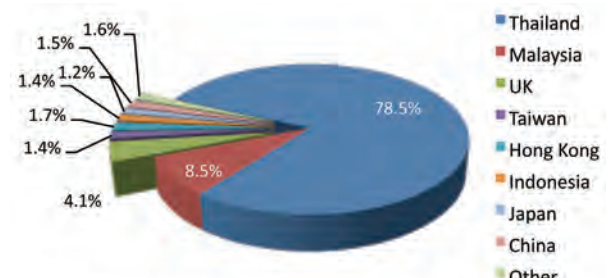
12 percent cost advantage compared to neighboring Thailand and Vietnam, partially offset other cost disadvantages. However, the small size of Lao PDR garment producers limits their ability to compete for the larger orders in the US market.

Figure 26: Destinations for garments in 2010



Source: UN Comtrade (mirror data)

Figure 27: Major Suppliers of Yarn and Fabric in 2010



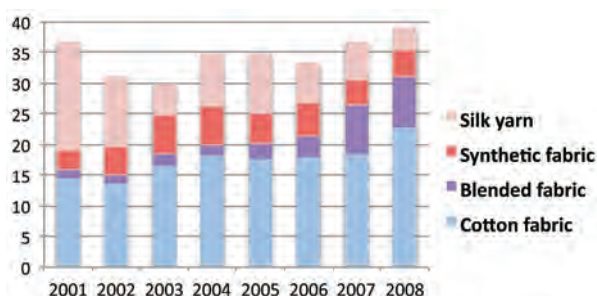
Source: UN Comtrade (mirror data)

125. There are no domestic producers of fabrics, threads, accessories or trim that are suitable as inputs for the production of export garments.

As a result, the local inputs are limited to packaging materials. The imported fabric is predominantly cotton and cotton blends, although the proportion of synthetic fabric is increasing (Figure 28). The majority of fabric and yarn comes from Thailand as shown in Figure 27. The dominant role of Thailand in the supply of inputs is due to three factors: the proximity of Thai textile factories, Thai traders re-exporting fabric to Lao PDR factories, and most important, the large number of factories that are owned and operated by Thai companies. Malaysia is the second largest supplier providing primarily blends of cotton and synthetic material.

126. For vendor factories, the principal suppliers are large textile manufacturers with strong linkages to the parent company. In some cases, the supplier may be part of the company that owns the garment factory. Contract manufacturers usually purchase from suppliers approved by the buyer or from smaller manufacturers in the region.

Figure 28: Material imported from ASEAN



Source: www.sourceasean.com

Table 10: Lao PDR garment enterprises

Year	Export Companies	Sub-Contractors
1998	58	10
2000	53	26
2005	58	55
2010	59	57

Source: ALGI

3.3.2 Industrial organization

127. The participants in the garment sector include companies producing for export and a growing number of subcontractors, a majority of both being foreign-owned. Currently, there are about 59 exporting garment companies complemented by 57 sub-contractors. The number of exporting companies has remained relatively steady over the last decade while the number of sub-contractors has grown significantly (Table 10). All but two of the factories produce for export. According to the 2006 survey of the garment industry about half of the enterprises are foreign-owned and another 30 percent are joint ventures. The five basic types of garment factories provide different levels of value as summarized in Table 11.

128. A 2011 survey of 89 factories classified them by size according to employment: smaller firms tend to be locally owned subcontractors while larger firms are primarily foreign-owned exporters.²⁴ Fifty-three percent of firms have less than 100 employees, accounting for about 8 percent of the workforce. Most of these are locally owned and operate as subcontractors. Another 30 percent have between 100 and 499 employees and account for 43 percent of the workforce. These firms are almost equally divided between foreign owned and joint ventures and most export directly rather than operating as subcontractors. The largest factories, those with more than 500 employees, represent only 10 percent of the firms but 49 percent of the labor force. They are mostly foreign owned. About half of the foreign owners are from Thailand, another 20 percent from Japan and 10 percent from Australia.

²⁴ Lao PDR Garment Sector Survey prepared by the World Bank.

Table 11: Characteristics of Different Business Models

Type	Description	Activities in addition to CMT
Vendor factory	One of a group of factories operated by a single company that produces for itself and/or under contract	
Contract manufacturer	A factory that produces under contract to a buyer that supplies inputs and distributes the outputs	Sourcing of some inputs
OEM	A factory that produces garments under contract with a brand manufacturer and distributes the products	Sourcing of some inputs and distribution to outlets
ODM	A factory that designs and produces garments for sale under buyers label	Design, sourcing of inputs, distribution to buyer's outlets
OBM	A factory that designs and produces garments for sale under own label	Design, sourcing of inputs, distribution to retailers

129. A substantial majority of exports are produced in foreign-owned vendor factories. These operate as one of several regional plants managed by a single company. The owner operates multiple facilities in order to reduce production risk and to take advantage of preferential trade agreements. These factories generally employ 1,000-2,500 workers with an annual output of 2-6 million pieces.

130. Although subcontracting activities have been increasing, there are limitations to future growth, due to difficulties in managing quality control, coordinating deliveries, and complying with social audits. About 2/3 of the large firms participate in an international social compliance certification scheme, but very few of the medium-sized firms and none of the small firms participate.

131. The garment industry remains the largest source of employment in the manufacturing sector. Most of the workers in the factories are skilled or semi-skilled equipment operators. The total employment is between 22,000 and 27,000 workers, approximately 4 percent of the formal workforce.²⁵ More than half of the garment workers are from rural areas where poverty rates remain high. Recruiting and training workers is the major challenge facing the industry since annual turnover for firms is as high as 50 percent-60 percent. The continual requirement to replace experienced workers with new hires results in low productivity relative to Lao PDR's major competitors.

3.3.3 Business models

132. The majority of garment factories in Lao PDR are contract manufacturers that provide little value addition. They are owned by investors from Thailand, China, Japan and Taiwan. The foreign buyers provide most of the designs and fabric specifications and quality control. The factories do the cutting, sewing, trimming, labeling and packaging for shipment direct to retail outlets and warehouses. According to a World Bank Enterprise Survey, the workers account for 68 percent of the value added in garment production.

133. About 80 percent of the foreign-owned firms are vendor factories, that focus on production of branded products. The parent company or corporate group operates as an Original Equipment Manufacturer (OEMs) and controls all of the client relationships, trade finance, and marketing. It distributes the buyers' orders among the factories according to available capacity, unit cost for production, and skill level. It arranges delivery of the inputs to the factory according to the buyers' specifications. The parent company may also select the fabric or provide a design, in which case the factory provides pre-production samples for the buyer's approval. For shipment of exports, the factory arranges domestic transport and the parent company or buyer nominate a forwarder to arrange the international movement. The factory acting alone has few opportunities to attract new orders or identify markets into which it could expand.

²⁵ This does not include about 250 thousand laborers from Lao PDR that work in Thailand where the minimum wage is more than double that of Lao PDR. The Thai government has recently promised to hike the minimum wage to 300 baht (10 dollars) a day, compared with a monthly wage of 500,000 kip (US\$ 62.50) in Lao PDR garment factories.

134. The remaining foreign-owned companies are primarily joint venture companies operating in Lao PDR as independent contract manufacturers based on the OEM model. There are two types of OEM factories. About 75-80 percent are partly owned by buying houses in Thailand, Hong Kong and Singapore. The rest have strong contractual relationships with buying houses in Japan and Taiwan. The product lines for this type of OEM are mostly work wear and suits for which the buying houses have their own retailing channels.

135. Vendor factories have the advantage of scale, as they are part of a larger production network. This provides them with better access to suppliers and global markets as well as to low-cost international finance borrowed against the parent company's balance sheet. In contrast, contract manufacturers serve fewer markets and have difficulties obtaining inputs of consistent quality at a competitive price. Furthermore, they lack access to low-cost finance making it difficult for them to evolve from a CMT/Assembly business model to an OEM.

136. The majority of locally owned factories are small and either sell to the domestic market or sub-contract to larger producers. A few of the joint ventures operate as Original Design Manufactur-

ers (ODMs) and provide their own designs. However, these are generally small-scale operations that produce accessories with the designs prepared by NGOs and other social enterprises.

137. The buyers of the exports from the vendor factories are largely brand marketers ranging from retail brands to fashion basics. Buyers of the OEMs exports are regional brokers and smaller retail chains. The buyers from the ODMs include the local garment factories and small international wholesalers and retailers.

138. The span of control of the factories is limited as shown in Table 12. The foreign-owned vendor factories (VF) have the least participation in their inbound and outbound supply chains while ODM factories have the greatest. The ODMs and many of the OEMs are responsible for managing the relationship with buyers, trade finance, input sourcing, and marketing of their services. In addition, they have much greater involvement in developing new products, attracting new buyers and identifying new distribution channels than the vendor factories.

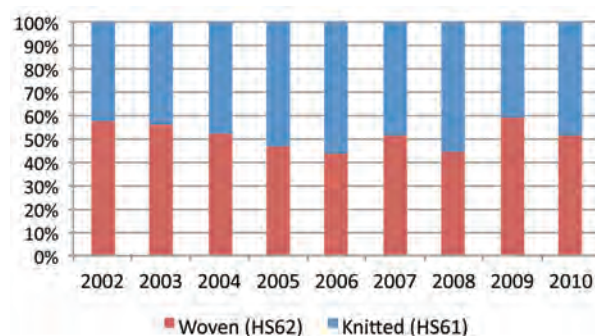
Table 12: Responsibility of participants in the garments supply chain

	VF	OEM
Receive and confirm orders	HQ	F
Interact with buyers	HQ	F
Design	HQ/B	B
Control strategies for expansion and diversification	HQ	F
Organize trade finance	HQ	F
International inbound logistics	HQ/S	S
Clear and deliver inputs	F	F
Transport and clear products	F	F
International outbound logistics	F/B	B
Manage labor	F	F
Insure quality	HQ/B	F/B
Clear and inspect	F	F
Package	F	F
<i>S=Supplier, B=Buyer, HQ=Parent company headquarters, F=Factory</i>		

3.3.4 Value proposition

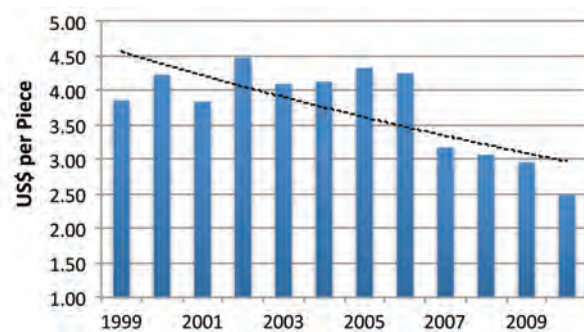
139. Lao PDR exports a mix of basic apparel, retail fashion and fashion basics. These are low-to-medium value garments and include trousers, shorts, shirts, jackets, dresses, swimwear, and general sportswear. The majority are men's apparel. In addition, a small amount of higher value niche products such as uniforms and baby garments are exported. A significant portion of the exports is made from cotton or cotton blends. The garments are divided equally between knitted and woven garments (Figure 29).

Figure 29: Proportion of knitted exports



Source: UN Comtrade

Figure 30: Average garment price



Source: ALGI

140. Most factories compete through lower labor costs. As a result, manufacturers focus on the production of low-value garments or medium-value garments with a large labor component. Accordingly, there has been a gradual decline in the average value per piece as shown in Figure 30. However, Lao PDR is constrained in competing in this market because the relatively small size of the factories limits the size of the orders that they can accept.

3.3.5 Supply chain structure and performance

141. The inbound and outbound supply chains for the Lao PDR garment factories are relatively simple with inputs delivered by the domestic and international suppliers and outputs distributed by the buyers or their nominated forwarders. The inputs are procured once a fixed order is received. They are delivered to the factory warehouse and placed in storage only long enough to assemble all the inputs for a production run. The outputs are shipped as soon as they are produced with weekly shipments from the time the initial output is available up to the time the order is completed. The products are shipped to the broker's warehouse, the retailer's distribution center or directly to the retail outlets.

142. Inputs are transported in different ways depending on their geographical origins but are mostly sourced by truck from Thailand. Inputs sourced in Thailand and Malaysia are delivered by road as full truckloads whereas inputs from China or elsewhere are shipped by sea in containers. The latter are unloaded in the Thai ports and transported by road to Vientiane. The suppliers arrange most of the shipments on C&F terms. The trip from the port to the factory requires 2 days. There are about 1400 truckloads of inputs arriving to Vientiane each year with an average value of about US\$ 35,000 per truckload.

143. For exports, the garments are transported by road to the Thai ports. Most, about 1800 FEU per year, are loaded in containers at the factory. The rest are transported as loose cargo using 10-14 wheel trucks and consolidated into 40-foot containers at a warehouse near the Thai ports. The terms of shipment are either FOB or FCA with most of the international movement arranged by the nominated forwarder. The average value of an FEU is about US\$ 110,000. Nearly all cargo is shipped by ocean; only 1-2 percent of is shipped by air or air-sea. These are smaller shipments, usually less than one ton and use air transport to compensate for delayed shipments.

144. Although there have been significant improvements in transit times and costs for imported inputs and exported products, Lao PDR remains at a disadvantage relative to its competitors. Since most of the inputs are from nearby, the disadvantage is less significant for the inbound logistics than the outbound shipments. Also, the disadvantage is greater for trade in fashion basics and less for basic apparel since the former is more time sensitive. This may have contributed to the downward trend in the value of the garments exported from Lao PDR.

145. On average, the total order cycle is a 2-4 of months so that a few days transit time does not represent a serious constraint. The typical time for a production run is one month. A similar period is usually required for delivery of those inputs on the critical path. It is difficult to obtain faster delivery times or favorable pricing from suppliers given the size of the orders. Order cycles of 3-4 months (from order confirmation to delivery to the point of loading) are acceptable in the low-medium value market. Therefore, transit times that include a few days for road transport plus a few days in port do not represent a serious constraint. However, when added to the marginal time for a feeder vessel to transship the container at a regional hub, they account for 12-16 percent of the total order cycle (from confirmed order to delivery at destination).

146. The cost for the logistics is high for several reasons: primarily because of the distance to the port, the practice of transferring cargo between Lao PDR and Thai trucks and the difficulty in finding backhaul cargo for container movements. Nevertheless, the cost for transporting inputs and exports exclusive of international shipping is estimated to add only US\$0.07-0.08 per piece or less than 3 percent of the export price.

3.3.6 Supply chain structure and performance

147. For this assessment, three vendor factories and two OEMs were interviewed; all used imported textiles and accessories supplied by the parent company or arranged by the buyer. Although multiple suppliers for both textiles and accessories are used, there are still difficulties with late deliveries and consistency of quality. The finished products are shipped to the United States, EU, Japan, and Australia where they are sold either to brand manufacturers or retail chains. Two of the vendor factories operate with a pre-planned production schedule and long order cycles. The other three produce for individual orders providing an order cycle of 30-90 days from order confirmation to initial shipment. Delays occur in only about 1 percent of the shipments and penalties for late shipments are rare.

148. The factories do not have significant problems with customs. Inputs are imported duty-free under temporary admission, no certificates are required and no tests are performed. The same applies to exports where there are few delays associated with preparing documents or clearing cargo for shipment.

149. The typical size shipment is 1-4 TEU and delivery times are typically 30 days. Most exports are shipped as FCL and loaded into containers at the factory. While there is a general perception that the cost for road transport is too high, the rates of US\$ 600-1000 per truck do not appear unreasonable given the distance to Bangkok, the cost of a customs bond and limited opportunities for backhaul cargo.

150. The OEMs have limited access to trade finance because of a lack of sophistication in the Lao PDR banking system. Letters of credit (L/Cs) are perceived as too costly to be used in the purchase of inputs especially because of collateral requirements. Where possible the firms develop trust-based relationships with suppliers and rely on open account transfers otherwise they pay on receipt of shipment using a TT. Since factoring of cash receivables or discounting of the importer's L/C is difficult, most OEMs use a line of credit with interest rates of 8-10 percent.

151. Payment schemes differ between vendor factories and OEMs. For vendor factories, all payments are handled by the parent company. Whereas for the OEMs, the foreign buyer pays with a TT when the goods are received or with a 30-60 day sight draft when the goods are shipped. The typical cash-to-cash cycle is 90-150 days. The principal financial risk is foreign exchange, since the available financial instruments are denominated in US\$ while a majority of the trade is in Euro, Baht and Yuan.

3.3.7 Additional findings

152. Strategies for increasing revenue differ between vendor factories and OEMs. Since the vendor factories have a high level of utilization, their principal strategy for increasing revenues is to add capacity. For OEMs, their strategy is to move into niches where that value added is greater (baby garments or garments with embroidery).

153. Two areas of importance for the garment industry are the extension of trade agreements and increases in labor productivity. The industry has attracted foreign investment because of the combination of low cost labor and favorable access to the European market as well as to suppliers in China and Thailand. The bilateral trade agreement with the US also appears to have stimulated trade, however other opportunities are limited. Accession to the World Trade Organization (WTO) is not expected to improve access to new export markets. The AFTA tariff reductions will make it easier to import inputs but are not expected to stimulate regional demand for Lao PDR

garments. At the same time, the benefits of existing trade agreements are declining so it will be necessary to develop new markets.

154. Efforts to improve labor productivity are limited in part because of high levels of turnover²⁶. A combination of increases in wages and productivity are required to stabilize the labor force and ensure opportunities for future expansion. The Association of the Lao PDR Garment Industries has established a Garment Service Centre (GSC) that addresses this problem by training supervisors in time and work-studies, line balancing and basic management skills and machine operators and new entrants in the operation of different sewing machines. This collective effort is necessary because factories are unwilling to make significant investments in in-house training given the high level of staff turnover. The challenge is to complement this with efforts to adjust the compensation and terms of employment to reduce turnover.

3.3.8 Objective and strategies

155. Although the garment industry faces a number of challenges and accounts for a diminishing share of total exports, it is a very important source of employment in Laos PDR. The primary contribution of the garment industry to the Lao PDR economy is employment for unskilled and semi-skilled labor; therefore, it is important to continue to grow this sector of the economy. This suggests that the trade-related objective for the sector should be to increase volume but not necessarily value or value addition. Lao PDR has considerable potential for increasing labor productivity through training and investment in equipment, which would allow it to compete for the production of higher value products. However, the employment objective can best be achieved by focusing on labor-intensive production and improving the broader investment climate.

156. The garment industry faces several limitations on expanding its garment exports. The strategy for growth must recognize these limitations while at the same time creating new opportunities.

²⁶ See World Bank (2012) *Lao PDR: Labour Standards and Productivity in the Garments Export Sector – A Survey of Managers and Workers* for a fuller discussion on issues surrounding turnover rates in the Lao industry.

Given the size and proximity of its competitors there is little opportunity for competing for large orders but there is scope for providing better service for smaller orders. Given the lack of raw materials and the size of the industry there are limited opportunities for moving beyond contract manufacturing. Given its location relative to its markets, the industry is at a competitive disadvantage in competing in markets that have short order cycles. However, it can improve its performance in production of garments for the 3-4 month order cycle and develop a capability for 45-60 day replenishment. This will require improvements in: (i) performance of the trade corridor linking Vientiane with Thailand's gateways; (ii) trade facilitation for consolidated loads; and, (iii) storage of inputs under a duty free regime.

157. The current situation, in which growth is driven primarily by foreign investment mainly from investors in the region, is expected to continue for the foreseeable future. These investments will be directed at both vendor factories and OEMs. Both require improvements in worker productivity and skills but for different reasons. The vendor factories need this to compete with other factories owned by the parent company in terms of skills and efficiency. The OEMs need this to compete in market niches in terms of product quality and cost.

158. An essential component of the strategy for growth is improvements in supply chain performance. The vendor factories are already integrated into the supply chains of their parent companies but lack the flexibility that would allow them to be more actively involved in their supply chains. The OEMs require closer coordination with suppliers and buyers to reduce order cycles and accommodate an increasing diversity of products, markets and distribution chains. In both cases, there is need for greater use of IT systems for connectivity with suppliers, buyers, logistics service providers and regulatory authorities.

159. Specific improvements are required by vendor factories and OEMs and by domestic OEMs and subcontractors. In order to develop new facilities and expand existing facilities, both vendor factories and foreign-owned OEMs require sites with easy access to labor, reliable utilities and trade corridor

connectivity, however, the size of the facilities and scale of related services will be greater for the vendor factories. For the domestic OEMs and subcontractors, there is a need to improve access to local trade finance.

3.3.9 Implementation

160. The development objective, need to attract foreign investment, focus on contract manufacturing and importance of increasing labor skill and productivity should be incorporated into a sector vision prepared jointly by the government and private sector. This should lead to a market study that identifies.

incentives to attract investors, such as:

- Manufacturers in neighboring countries producing for brand marketers that are looking to expand production,
- Large buying agents looking to contract production,
- Local entrepreneurs who want to produce higher value products for niche markets,

and potential niche markets such as:

- Medium value products that have a predictable demand and limited price fluctuations,
- Buyers that can be better served by a small factory offering flexibility and robust supply chains, and,
- Suppliers and markets with reasonable levels of connectivity.

161. This vision would serve as the basis for a coherent strategy that addresses the issues related to scale, supply chain performance and access to resources. The strategy would include efforts by government acting alone and in collaboration with the private sector. Since the vendor factories already benefit from the scale and experience of their parent companies, the strategy would focus on providing sites that would be attractive to future investors. For the other factories, the emphasis would be on improving the inbound and outbound logistics. Since Lao's garment industry is composed of relatively small factories, the strategy would be to provide a cluster for logistics services that serve these factories in order to achieve economies of scale.

162. The primary component of the strategy should be the development of a zone to serve the garment cluster around Vientiane. This zone would allow for the concentration of logistics services including forwarding, consolidation, and cargo clearance. It would provide a single window access to customs and other regulatory agencies and would be located close to the border to expedite cross-border movements.

163. This zone could serve as a dry port or ICD, however, current volumes are insufficient to attract shipping lines or railway service providers or to justify a significant investment in infrastructure. However, it could provide a location for the consolidation of shipments of apparel and de-consolidation of deliveries of inputs by offering duty free storage for to suppliers and wholesalers for storing inputs and for factories that are have a significant amount of re-orders and stock replenishments. The zone would not replace Thanaleng or the consolidation warehouses in Thailand but would provide a more efficient gateway for the garment industry. The zone could also be used to create a production cluster for foreign and domestic suppliers.

164. In order to accommodate future investments in garment factories, the zone would be located so as to provide access to a large labor pool and provide reliable utilities. It would provide space for domestic enterprises that are expanding their activities as subcontractors to the larger garment factories.

165. The hub should be directly connected to the corridor linking Vientiane and the Thai ports. This corridor has been continuously upgraded through improvements in border procedures and transit arrangements including:

- Reduction and simplification of tariffs,
- Adoption of the WTO procedure for valuation of imports,
- Introduction of ASYCUDA to automate the customs procedures,
- Evolution of bilateral agreements with Thai-

land and Vietnam on the movement of goods in transit, and,

- Dramatic increases in the number of firms competing for transport of Lao PDR goods.

However, further improvements are required if Lao PDR is to have the same level of connectivity as garment producers in Thailand.

166. This hub concept could be replicated in other parts of the country, e.g. Savannakhet.²⁷ The challenge is that these other locations must provide not only the utilities, connectivity to markets and large labor pool but also sufficient amenities to attract managers and supervisory staff. The failure of many countries to develop a successful zone program can be attributed to a lack of collaboration between government and the private sector in developing a value proposition that is attractive to the target investors. Some of the information required for an assessment of a proposed zone development is shown in the box below.

167. Another area in which the government and private sector can collaborate is in upgrading labor skills and introducing a compensation scheme that will reduce the rate of labor turnover. This will occur naturally as the bidding for scarce labor raises wages, however, a standard approach towards compensation could reduce poaching and encourage worker loyalty during this transition period.

168. In order to improve productivity and increase labor skills, the Association of Lao PDR Garment Industries (ALGI) has introduced a general training program for new machine operators and higher-level training for specialized skills. However, these are standardized curriculum. Additional modules would have to be developed to meet specific needs of the industry. These should be developed by the manufacturers who would then provide personnel to do the training. The government could complement this with:

- Investments in facilities and training equipment;

²⁷ Plans are already underway for developing a zone near Savannakhet. A hub would be more appropriate unless there is substantial demand for investment in new factories

- A guarantee scheme for fee-based training in which the trainee is expected to remain with an employer for a fixed period in lieu of a fee; and,
- Funding for short-term courses focused on improving management skills in inventory and supply chain management, quality control and social accountability.²⁸

3.4 Fruit and vegetable supply chain

3.4.1 Production and trade

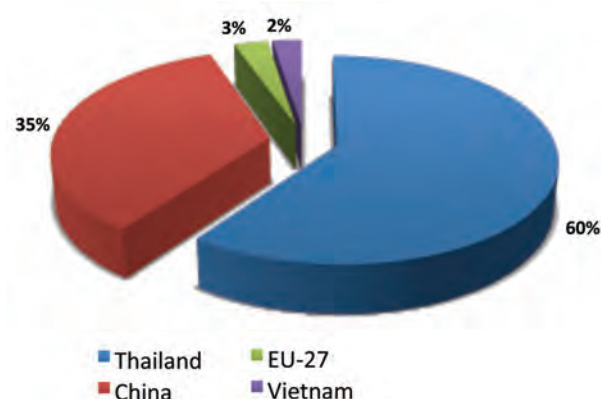
Fruits and vegetables have seen rapid growth in production for exports, albeit from a very low base, but the potential for future expansion is significant. Fruits and vegetables are grown primarily for local consumption and for sale in the domestic market. A relatively small proportion of the farms produce fruits and vegetables as cash crops. However, since 2000, there has been a rapid increase in the export of vegetables and legumes. As of 2009, vegetables were planted in about 150 thousand hectares versus about 40 thousand hectares for fruits. Common leafy vegetables include cauliflower, cabbage lettuce, kale, bok choy, mustard, coriander, leaf onion, water spinach, and celery. Fruit vegetables include cucumber, yard long bean, tomato, watermelon, squash, and pumpkin while fruits include bananas. the trade in fruits and vegetables remains a negligible in terms of the value Lao PDR trade. However, the exports exceeded 150 thousand tons in 2009 most of which was shipped to neighboring countries (Table 13, Figure 31).

Table 13: Export of fruits and vegetables in 2009

Crops type	Tons	Destination
Water melon	114,780	China, Vietnam
Cassava	17,427	China
Cabbage	13,369	Thailand
Pumpkin	2,535	Thailand
Chinese cabbage	138	Thailand
Sweet potatoes	2,021	Vietnam

Source: DoA/MAF, GOL, 2009, IPM 2011

Figure 31: Destination of exports of fresh fruits and vegetables in 2009



Source: UN Comtrade (mirror data)

169. In 2010, the value of exports of fresh vegetables and fresh and dried fruit was about US\$9 million, such exports being mostly destined for Thailand and China. The largest commodity, cabbage, accounted for about half of this amount. Other major exports were bananas, about \$2 million, and cassava, about \$1.8 million. According to Lao PDR Customs data, about 70 percent of these exports were destined for Thailand, 23 percent for Vietnam and 6 percent for China. However, a significant amount of exports to Thailand were re-exported and a significant portion of the exports to China went unreported as indicated by data from the importing countries.

170. The value of exports of processed fruits and vegetables is smaller than for fresh produce, such exports being mostly destined for Thailand. Most of the processing of Lao PDR fruits and vegetables is undertaken in Thailand which provides greater scale of production, more efficient processing and better market access. In 2010, the value of the exports of canned fruits and vegetables was about US\$ 3.4 million of which fruits accounted for approximately 60 percent. In addition, there were about US\$ 0.72 million in exports of dried fruit. Some 90 percent of the processed food exports were destined for Thailand.

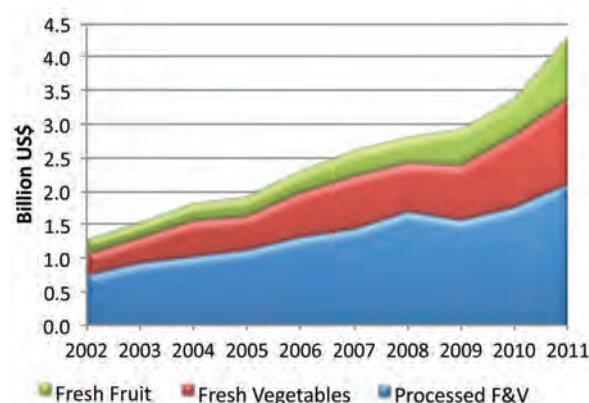
²⁸ The latter is particularly relevant as Nike and Adidas have cancelled contracts because of concerns about labor standards

3.4.2 Structure of the industry and demand

171. In Lao PDR, the production of fresh and processed fruits and vegetables for export is small and fragmented and mainly provides inputs for Thailand's food industry. The majority of the production comes from individual farms with less than 5 hectares. Packinghouses and processing plants are also relatively small with weekly output ranging from less than one ton to a few TEU. The structure of Lao PDR's export trade in the production of fresh processed fruits and vegetables is determined by its neighbors. For the medium term, it will continue to function as a supplier to Thailand's food industry and food retail sector.

172. Thailand's food processing industry has expanded rapidly over the past two decades. Its production methods and production machinery meet international quality standards and more than 50 percent of its production is sold abroad. As a result, Thailand is now a leading exporter of ready-to-eat foods, and processed fruits and vegetables. In 2011, it exported about US\$ 2.1 billion (Figure 32) of fresh fruits and vegetables and an equal amount of processed fruits and vegetables²⁹.

Figure 32: Thai exports of fruits and vegetables



Source: UN Comtrade 2012

173. Thailand has a low number of large factories with export strategies or higher value added schemes. While there are about 10,000 food and beverage processing factories in Thailand, only about 12 percent are medium to large factories that produce for export or supply higher-valued products to the domestic markets. Of these, about 20 percent are cold storage plants and only about 7½ percent produce canned fruits and vegetables. These factories purchase most of the fresh fruits and vegetables exported from Lao PDR. They include factories owned by leading multinational producers such as CP and Betagro (Thai), Dole, Kraft and Procter and Gamble (U.S.), Nestle (Switzerland), Royal Friesland Foods (Netherlands), Unilever Group (Anglo-Dutch), Gram-piam (UK) and Ajinomoto (Japan).

174. Lao PDR also sells fresh fruit and vegetables to importers who sell the produce directly to the Thai food retail sector. This sector has experienced the same consolidation as has occurred in Europe and the US with large retail chains capturing a majority of the market share. Multinational retailers have dominated Thailand's modern food retail market since their aggressive store expansion in 2000-2002, especially in the hypermarket segment. The majority of these investments have come from the leading international retail chains such as UK-based Tesco with its Tesco Lotus stores, Big C Supercenter of Casino Guichard-Perrachon SA of France, Carrefour of France, and Netherlands-based Makro (Table 14).

175. This market concentration has affected the selection of suppliers. Whereas small and medium size retailers obtain their supplies from large distributors and branded food companies such as Nestle, the large retailers source their supplies directly from the processors. In order to do this, sophisticated logistics systems have been developed which meet strict requirements in terms of quality, quantity, reliability/order fulfillment, and time of delivery. The stricter requirements are necessary because fresh produce is usually a store product not a branded product. Therefore, consumers consider quality and

²⁹ http://www.thaitradeusa.com/home/?page_id=823

freshness, year-round availability, and packaging and presentation when selecting a store. Since these retailers must comply with regulations concerning food safety, pesticide requirements and corporate social responsibility norms, they pass on these standards to their suppliers.

Table 14: Modern Grocery Distribution in Thailand

Distributor	Ownership	Outlets	Type of store
Tops	Thai	240	Supermarket
Big C	French/Thai	94	Compact store to hypermarket
Tesco Lotus	UK	64	Hypermarket
Makro	Dutch	48	Supermarket
Family Mart	Japan	622	Compact Supermarket
Foodland	Thai	12	Compact Supermarket
JUSCO	Japan	2	Hypermarket

3.4.3 Business model

176. The enterprises responsible for organizing the supply chains for the export of fruits and vegetables are generally the packinghouses for fresh produce and the processing plants for processed food. The two types of firm perform different activities as shown in Table 15 but both are involved in the initial sorting, grading and treatment, and then later processing and packing. The different business models applied are associated with the extent of integration of their inbound and outbound supply chains. Some of the packinghouses, most domestically owned, are stand-alone operations that purchase inputs from various suppliers. Whereas other packinghouses, which are mostly foreign-owned, have an exclusive source of inputs, typically a plantation, and complement this source with purchases from individual suppliers.

Table 15: Processing Activities

Packing House	Processing Plant
Sorting	Sorting
Grading	Grading
Treatment Washing	Treatment
Packaging	Drying
Labeling	Freezing
Storage	Juicing
	Pickling
	Cooking
	Canning
	Preserving
	Preparing (for ready to eat products)

177. A similar distinction can be made between processing plants that are stand-alone operations with a network of suppliers and those that have an exclusive source of inputs. There is also a third model in which the processing plants are production units of international branded food companies.

178. The business models can also be distinguished by their relationship with buyers. As Lao PDR firms are small, Thai brokers are often relied on to complete the sale to the foreign buyer or Thai processors to produce the food products for sale to retailers in the region.

3.4.4 Suppliers and Buyers

179. Fruits and vegetables are obtained from three sources: large farms, farmers' groups and plantations. Collectors working under contract for the packing house/processing plant make purchases at the farmgate. Purchases from farmers groups and plantations do not involve an intermediary. Traditionally these purchases have been spot market transactions, but increasingly they are based on a contract, either verbal or written that stipulates the price and may also specify the volume and quality.

180. Exports of fresh and processed fruits and vegetables are sold either to Thai intermediaries or direct to foreign buyers. The former is more common because volumes are relatively small, outbound logistics account for a significant portion of the delivered cost and developing and maintaining markets requires substantial resources. The Thai intermediaries also have the option of selling into the domestic market as well as to the foreign importers. The foreign importers are either distributors or retail chains. The former are wholesalers specializing in fruits, vegetables or specific types of produce. The latter include grocery retailers or food services.

3.4.5 Span of control

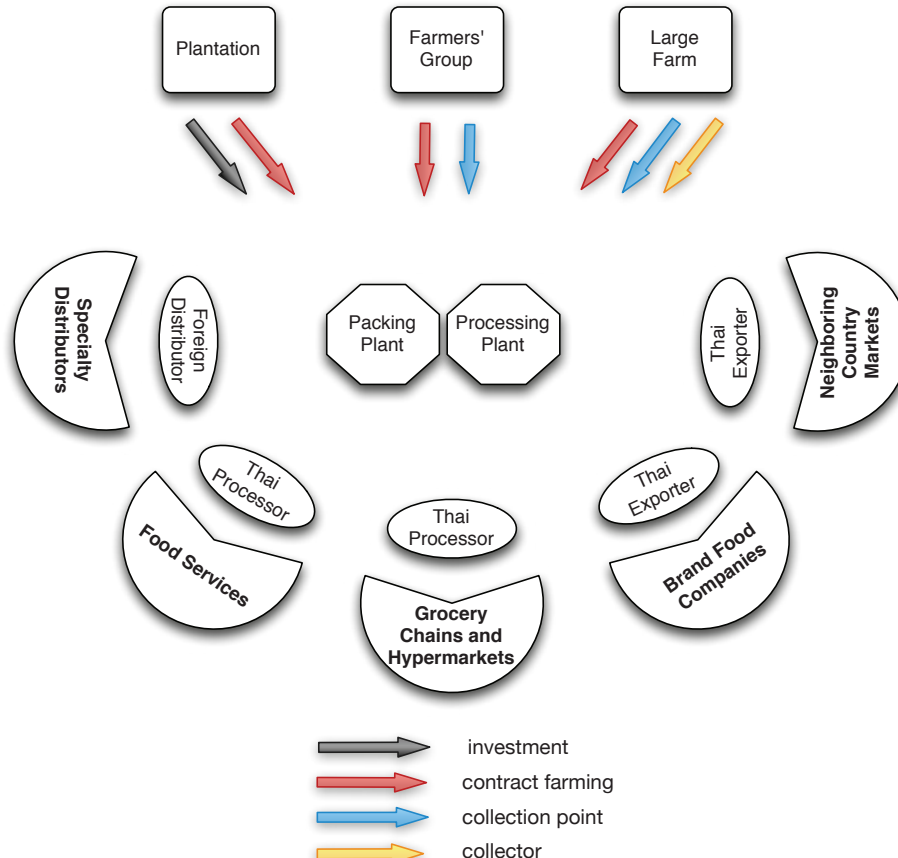
181. The extent of backwards integration is determined by the contractual relationship with the suppliers. The increasing specificity of orders in terms of quality and standards of fresh and processed food has led to greater integration in the form of contract farming and investments in plantations. The growth of modern grocery distribution and

food service franchises has resulted in the elimination of intermediaries in the outbound supply chains and forced distributors to specialize in specific food products. In the case of Lao PDR, the packinghouses and processing plants are too small to sell directly to larger food chains or specialty wholesalers but some serve regional niche markets.

3.4.6 Supply chain structure and performance

182. The basic structure of the suppliers, processors and export markets is shown in Figure 33 along with the mechanisms for linking them. The interactions between the suppliers and processors are increasingly managed through formal arrangements rather than through intermediaries. In contrast, the interactions between the processor and the retail market are managed by intermediaries or by the processor's foreign owner. This isolates the farmers and processors from their markets but reduces their financial exposure and allows access to markets in which they could not otherwise compete.

Figure 33: Producers, processors, intermediaries and markets



183. In recent years, most retailers have reduced the number of suppliers thereby increasing the size of orders and the demand for reliable delivery beyond what the Lao PDR processors can provide. They have also raised the standards for quality and safety and uniformity above those that the Lao PDR processors are able to meet. Lao PDR processors have been able to circumvent these constraints through Thai intermediaries. Without their participation, the Lao PDR processors would not only have to invest in additional facilities and machinery but also increase their management and technical capacity. In addition, they would incur higher logistics costs for delivering smaller shipments to a larger number of small buyers.

184. Fruits and vegetables are transported from the farm or collection point to the packinghouse/processing plant in open trucks, an approach that has a number of drawbacks. This method of transport results in losses due to exposure and since smaller trucks, short distances and empty backhauls are involved, the cost per ton kilometer is relatively high. Fresh produce is shipped primarily to neighboring countries by road in refrigerated vans. A small amount is shipped to the Middle East by air. Processed fruits and vegetables are shipped by sea in temperature-controlled containers to East Asia. On account of the density of the products, 20-foot containers are used, rather than 40-foot containers,

185. For transport to the port, only one container can be carried on a truck chassis since two fully loaded 20-foot containers would exceed the axle load limits: this entails higher costs. As a result, the container is charged at about US\$ 1,600 for the complete round trip truck movement. This includes movements in both Lao PDR and Thailand and the cross-border transfer. The additional costs for temporary storage, consolidation, clearance and port handling are about US\$ 800. The total exceeds the cost for ocean freight. When combined with the sea freight, the logistics cost is about US\$ 0.30 per kilogram. For processed fruits that do not require refrigeration, the logistics is much lower both for truck transport and for ocean freight.

3.4.7 Finance

186. Most of the financing for working capital involves advances from the importers to the Packinghouses/ Processing plants. These are then transferred to the collectors and farmers. Commercial loans are available for the larger firms but most of the small firms rely on their own cash flow.

187. There are a number of difficulties with the current configuration of the supply chains. For the inbound supply chains there are the usual problems of damage and deterioration, but more importantly, there is a lack of consistency in quality and availability of crops delivered to the packinghouses and processing plants. This problem has been overcome for exports of green beans, bananas and some processed foods where the supplies are from plantations or large farmers. For the other exports, it is left to the Thai intermediaries to sort and consolidate inputs for different suppliers. Unless the inbound supply chains are improved, it will be difficult for Lao PDR to capture some of the value addition currently performed in Thailand. Without an increase in scale and elimination of the transfer of cargo at the border, it will be difficult to reduce land transport costs.

3.4.8 Survey findings

3.4.8.1 Fresh fruit and vegetables

188. Three packinghouses with very different supply chains were investigated in detail. All are foreign-owned and import seeds and other inputs either directly or through wholesale markets in Thailand. One firm exports a mix of vegetables, including green beans and okra, to Japan; another ships organic vegetables to the Middle East, and the third sells fresh cabbage to Thai traders.

189. The vegetables of the first firm are grown on their own land based on fixed orders and delivered in multiple shipments with an average consignment of 6 tons. These exports receive additional processing, testing/certification and packaging after leaving Lao PDR, which significantly increases their value. The formal transfer of ownership occurs at the border with Thailand and the goods are then sold C&F with the ocean shipment arranged by the Thai owners. The financial transactions are handled through the parent company, which provides monthly payments to cover operation cost.

190. The second firm purchases the vegetables through contracts with farmers and sells them on a shipment-by-shipment basis with consignments of 60-180 kg. Goods are sold FOB to foreign retailers who arrange air shipments. There is a 30 percent advance payment approximately one week before the crops are purchased with the remaining 70 percent paid when the buyer receives the produce.

191. The third firm uses collectors to purchase cabbage from farmers and sells it by the truckload directly to Thai traders at the border. Similar to the first firm, these exports receive additional processing, testing/certification and packaging in Thailand, which increases their value significantly. Payments are received once the cabbage is handed over, either in cash or by TTs.

192. All three firms arrange domestic transport using refrigerated containers/vans. They clear the cargo and obtain necessary documentation e.g. the certificate of origin and phytosanitary certificate. The order cycles range from a few weeks for the cabbage exports to six months for the green beans where orders are taken prior to planting. The value of exports ranges from US\$ 0.50 per kilogram for cabbage to US\$ 16 per kilogram for high-end organic vegetables. There are no Letters of Credit or other forms of structured financing used. The firms do not take out loans for working capital and instead rely on advances from the buyers as well as their own cash flow.

193. The logistics challenges are quite different for each firm. The principal difficulties are:

- Firm 1: Delays when transferring cargo at the border, lack of farms that can provide consistent quality and additional inspections required for purchases from individual farms.
- Firm 2: Delays when transferring cargo at the border, losses in the transport from the farm to the packinghouse and long cash-to-cash cycles because the firm provides inputs to it farmers.
- Firm 3: A lack of lab facilities to obtain certifications required by the Thai government and cash flow constraints.

194. All the firms anticipate increasing their volume of shipments in the future. Their principal source of competitive advantage is product quality and uniqueness as well as speed of delivery.

3.4.8.2 Processed fruit and vegetables

195. Four processing plants were interviewed. One cans sweet corn, another produces cornstarch and the remaining two produce jams and preserves. Their inputs are purchased from farmers groups, individual farmers, collectors and wholesale markets. The inputs are delivered by the producers, who receive cash payments on delivery. Three of the firms have difficulties with availability and quality of inputs and are not able to take orders for multiple shipments with fixed quantities and fixed delivery dates. The fourth firm has contracts with farmers' groups and provides advance payments and transport for collection.

196. The firms have different consumption, export and shipments patterns. The firms consume from 150 to 2,000 tons of inputs per month with typical deliveries varying from ½ to 100 tons. They export from 100 to 1,500 tons per month in consignments that range from 3½ tons to 15 TEU. The frequency of shipments varies from 2 days to 2 weeks. The principal markets are in neighboring countries and Europe. Exports to Europe are shipped in ocean containers. The firms arrange for the domestic transport while the buyers arrange the international movement. The order cycles are relatively short, two weeks or less, for delivery to the border or loading port.

197. The exports are sold on a shipment-by-shipment basis except for one firm that has contracts for multiple shipments. The average value of the shipments ranges from about US\$ 1-3 per kilogram. The terms of shipment are FOB or ex-works basis, except for firms with smaller shipments in which case the terms are C&F. Payment is by TT from 7 to 45 days after shipment.

198. The principal sources of risk include fluctuation in foreign-exchange rates and physical damage or loss in transit. There are relatively few delayed shipments. The cash-to-cash cycle can be as short as 7 days for shipments to neighboring countries or as long as four months for shipments of goods involving contracting farming and overseas destinations. The producers rely on both their own funds and lines of credit to pay for the inputs. The latter have fixed interest rates ranging from 10 to 15 percent.

199. The firms have plans to expand their exports but must first improve their supply of inputs and diversify their markets. Their competitive advantage is based on the quality and uniqueness of their products.

3.4.9 Objectives and strategies

200. Production, processing and trade in fruits and vegetables is unlikely to be a significant contributor to the growth in trade or GDP in the medium term. Therefore the objective of increasing this activity should focus on rural economic development and employment. This implies an increase in the amount and variety of crops produced which may be complemented by an increase procession.

201. The core strategy for achieving increased productivity in this sector requires an assessment of the markets in which Lao PDR can compete. The current organization of production in the Bolaven Plateau is restricted to cross-border shipments and some exports to niche markets in East Asia. Even with a significant increase in production, Lao PDR will have difficulty competing in the fresh produce markets in Europe or North. It can continue to compete in the Middle East and East Asia but only in niche markets due to its capacity. Even competing in a niche market will become more difficult, as buyers seek to limit their suppliers to those that can provide regular shipments with consistent quality and in sufficient volumes to stock multiple retail outlets in a given area.

202. Exports of processed fruits and vegetables offer greater potential since the logistics are not as challenging, but they require a branded product. This implies operating as an OEM processor with sufficient capacity to meet year-round demand.

203. It is possible to continue serving the domestic market and the border areas with small-scale production of crops sold through traders and wholesale markets, but export markets require a more organized delivery system. In order to meet this demand, packinghouses and processing plants must be able to ship at least 5 TEU per week. This requires a minimum catchment area of 2,500 hectare³⁰. In order to ensure a consistent quality and quantity, processors would have to obtain the crops from either farmers' groups or plantations.

204. A strategy for increasing the volume of exports would include:

- Restructuring the inbound supply chains in order to improve both the yield and quality of fruits and vegetables delivered to the packinghouses and processing plants,
- Reducing the number of suppliers by increasing purchases from plantations and farmers' groups,
- Strengthening the contractual relations between the suppliers and the packinghouses and processing plants in order to ensure a reliable supply,
- Increasing use of cold storage and cold chains,
- Improving organization of transport and
- Insuring faster transfers at the border.

205. In order to improve the value of the exports, Lao PDR will continue to depend on Thai packinghouses and processing plants to provide for most of the value added to its crops in the short-to-medium term. While there will be additional foreign investment in Lao PDR packinghouses and processors, these will be limited in size and handle less than half the demand. Initially this strategy would be applied to the agricultural production in the Bolaven Plateau and then expanded to other areas with potential for exporting fruits and vegetables.

3.4.10 Implementation

206. The proposed strategy builds on a number of trends. Such trends include increasing the number of large plantation and farmers' groups, improvements in contract farming arrangements and foreign investment in processing plants. These trends

³⁰ Assumes 8 tons/year per planted hectare, 16 tons per TEU, 20 percent of the land in catchment area is planted in fruits and vegetables

have supported the increase in the volume of fruit and vegetable exports while improving the quality and reliability of supply.

207. Restructuring of the collection of fruits and vegetables from the farm requires not only investment in collection facilities and systems for reducing losses, e.g. cold chains, but also changes in contracting for the growing, post-harvest processing, and transportation of fruits and vegetables. Improvements will continue to be incremental, but it is important to have a long-term vision and to identify critical investments and changes in process.

208. Government involvement will be important for those activities that benefit the industry in general, rather than individual firms. However, more needs to be done in the area of quality control, certification and traceability if the fruits and vegetables are to be sold directly to foreign markets. Improvements in quality and traceability can be achieved through private sector initiatives. Multinational companies such as Dole have already introduced changes but dissemination to local and regional firms remains a challenge. As a result, there will continue to be a need for public sector oversight of the enforcement of quality and phytosanitary standards for both fresh and processed fruits and vegetables. This will require that government continues to do some testing but equally important that it should:

- Harmonize domestic and international food quality and safety standards;
- Provide financial support for accreditation of food testing laboratories by international agencies; and,
- Encourage importing countries to set up offices for certification.

It should also consider:

- Contract specialized international agencies to perform pre-shipment inspections; and,
- Establish zones for these crops, e.g. pesticide free, organic, and disease free production zones.

209. Restructuring the inbound supply chains will also require investments in logistics clusters and common-user cold storage facilities, but there are longer-term requirements for when the volume of exports is much greater especially in terms of transparency and access to market information³¹. A more promising area is to improve the transparency of the supply chains by improving access to market information and facilitating transactions between supply chain participants. Market information on demand, prices and standards is essential for growers when deciding on what to produce and whom to sell to, especially in the dynamic markets for horticultural goods. Since smaller growers often lack the resources and skills to access and interpret this information, government can play an important role in disseminating this information as well as information related to cultivation practices. It can also provide information for packinghouses and processors regarding standards and certification requirements for different countries and markets.

210. The availability of market information at the farm level has increased significantly in recent years, but considerably more needs to be done. More is to be done indeed if Lao PDR farmers are to achieve the same level of access provided to farmers in Kenya, India and Uganda through the use of internet and cell phone technology. Recent innovations have focused on using these technologies to simplify financial transactions between farmers and the buyers of their crops. The use of cell phone-based payment systems for commercial transactions has made significant inroads in the Philippines, Kenya, South Africa and elsewhere.³² Now these systems are being adapted to agricultural transactions, thereby reducing the need for intermediaries and lowering transaction costs (see box below). These initiatives would provide direct benefits to both farmers and the operators of packinghouses and processing plants, but will require a coordinated effort by government and the private sector.

³¹ Collection points, distribution warehouse, specialized and dedicated refrigeration systems have yet to emerge in the subregion,

³² Beyond voice: New uses for mobile phones could launch another wave of development, Economist, Sep 24th 2009

211. Efforts to diversify the markets for Lao PDR exports of fresh and processed fruits and vegetables have relied on Thai intermediaries and foreign owners of the packinghouses and processing plants. Local processors continue to rely on regional trade fairs to develop brand recognition. Government can assist these efforts through technical assistance in the basics of packaging and presentation.

212. Granting of land concessions in the Bolaven Plateau to agribusiness investors is an important mechanism for promoting export of fruits and vegetables. As suggested earlier, the catchment area for a packinghouse or processing plant should exceed 2,500 hectares with a significant part being under the control of a single grower in order to ensure a regular supply of crops with consistent quality. The decision-making process for granting these concessions should take into account not only suitability of the land for growing specific crops but also access between these areas and facilities for packing and processing.

Box 1: DrumNet Transaction Network

DrumNet is a third party supply chain management company that facilitates the extension of credit to and the management of transactions for small-scale farm producers in Eastern Africa. It acts as a transaction broker using an integrated marketing and payment system to establish a commercial network linking rural smallholder farmers, commercial banks, large-scale buyers of farm products, produce transporters, field agents, and suppliers of farm inputs. Before farmers plant crops, DrumNet negotiates contractual arrangements between buyers and farmers, and at harvest time coordinates produce aggregation, grading, and transportation through agreements with local field agents and transporters. Immediately following a successful transaction, data is entered into DrumNet systems, and a set of bank account transfers are triggered to pay the participating farmers, agents, and transactions. Through its field agents DrumNet further ensures that farmers cultivate in accordance with the requirements of the buyers. All payments from buyers pass through DrumNet accounts at the bank, thus enabling buyers to focus on their core business. Through Drum Net, commercial banks are able to avoid high transaction costs. For all participants, payments take place in a convenient timeframe, mostly in a cashless manner, increasing security and accuracy.

Source: Southeast Asia Regional Conference On Agricultural Value Chain Financing

213. Other contributions by government to the development of this trade relate to basic improvements in transport and trade facilitation.

The public sector has an important role in providing and maintaining basic infrastructure for transport, communications and power for cultivation, harvesting and processing of fruits and vegetables. For transport, it is important to provide adequate capacity and efficient movement on the major corridors serving the Bolaven Plateau. It is also important to consider the role of these corridors in initiating new developments. At present, the only corridor serving the exports from the Bolaven Plateau is the road through Pakse to Ubon Ratchathani. In the future, an alternative corridor through Vietnam should be considered, however, this will require investments on both sides of the border.

214. Although there have been significant improvements in trade facilitation with reduction in documentation and simplification of border procedures, these have barely kept pace with the demand for greater efficiency. The time spent crossing the borders is generally only a few hours, however the time required to obtain the phytosanitary certificate is 2 ½ to 5 days. The growing list of documents and certificates required for exports of food products to different markets cannot be efficiently managed without the introduction of an ITC system to expedite preparation and review of documents.

The demand for secure movement especially for fresh produce requires a seamless cross-border movement. In the past, cumbersome procedures prevented this trade from taking place. Today, they limit growth by introducing delays and handling requirements that reduce the value of fruit and vegetable exports.

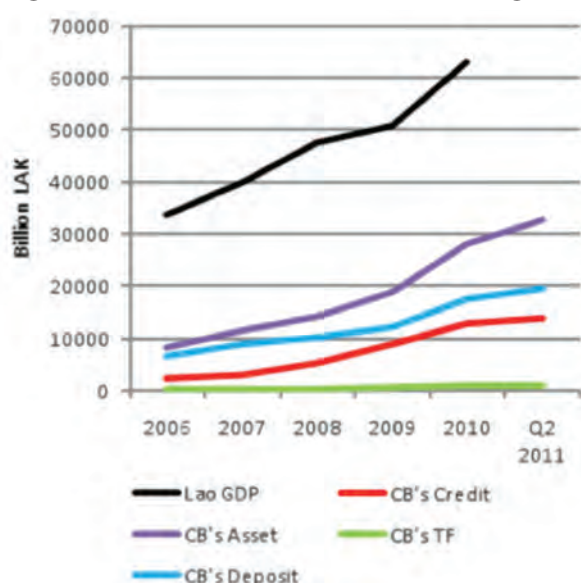


Trade finance

4 Trade finance

215. Although credit facilities have increased lately, financial services are still lagging in Lao PDR. Under the existing Commercial Bank Act (December 2006), all registered commercial banks in Lao PDR can provide trade finance (TF) related business in both local and foreign currency. The credit facility of commercial banks has gradually increased its share of GDP from 7.5 percent in 2006 to 19 percent in 2010. While total credit has increased at the same pace as GDP growth, the banking sector contributes a small percentage to the national economy compared to other countries. (Figure 34). Still, most Lao PDR customers require just basic banking business with simple conditions. This is partly due to limited financial education. In addition, banks lack an efficient financial infrastructure such as an effective legal system, an interbank market, a bond market and a well-organized national payment system. Although a recent regulatory review has facilitated customer-related banking business transactions, there is still some room for improvement in the structural and regulatory framework of the banking industry especially in the area of risk management, internal control and supervision.

Figure 34: GDP vs. commercial bank holdings



Note: CB = Commercial Banks, TF = Trade Finance Business
Source: World Bank Database, Bank of Lao, Audited Financial Statement of SOCBs and World Bank staff estimates.

216. The TF business in Lao PDR is basic and limited for all banks, state-owned commercial banks (SOCB) and non-SOCB. The principal interest is in loans to cover working capital with an average tenor of 90 days. The principal demand for these loans comes for the garment, agricultural, petroleum and automotive sectors.

217. Other financial services are also being provided though. The banks also execute letters of credit (L/C), sight and 90-days, pre-shipment finance, Trust receipts, other guarantees and foreign exchange remittances. The volume of trade finance has remained stable even as the economy has doubled. In Lao PDR on average, only two L/Cs are issued per day but for an average amount of USD 250,000. The banks provide foreign exchange services, but do not provide forward, future or derivative-related transactions.

218. Both foreign-owned companies and local companies do not resort a lot to trade finance for structural reasons. The low demand for trade finance is explained by the fact that most of the export transactions involve foreign-owned companies that obtain trade finance through the international market based on the credit of the parent company. Also, local companies involved in long-term relationships with suppliers and buyers prefer to trade on account to minimize the need for a costly and time-consuming financial intermediation. For trades that involve short-term relationships, L/Cs with or without third party confirmation are used to reduce counterparty risk.

219. The largest SOCB dominates the market for trade finance and has the largest TF department in the country. It is able to issue L/C's directly with correspondent banks in major exporting countries. However, it does not offer back-to-back or domestic L/Cs. The bank discounts L/Cs for 70-80 percent of face value, in the range of US\$ 0.1 million in the garment industry to US\$ 10 million for investment projects. Customers may also establish lines of credit for which land or buildings can be offered as collateral. The bank charges a risk-based interest rate.

220. The SOCBs lack in-house training capacity in trade finance instruments and must rely on the training facilities of other agencies. For example, the largest SOCB relies on training facilities of its overseas correspondent banks. Another is setting up a trade finance section with the assistance of the Lao PDR central bank (Bank of Lao PDR).

221. The foreign banks in Lao PDR are capable of providing trade finance services to their Lao PDR customers but there are several limits both on the supply and demand sides. For instance, demand is limited indeed due to the staff's limited familiarity with the products, their high cost and collateral requirements and the limited branch network. As a result, their customers prefer inward/outward remittances rather than the costly L/Cs. In addition, weak legal enforcement in the case of default discourages lending. For example, banks are unable to continue charging interest in the event of default and taking possession of forfeited land may take several years. Therefore, foreign-related banks reduce their risk by raising collateral requirements and requiring full cash guarantees (one bank requires 110 percent cash guarantee on L/C application for customers without a credit line. On the other hand, multinational companies can obtain credit from foreign banks if their parent company provides full overseas guarantees.



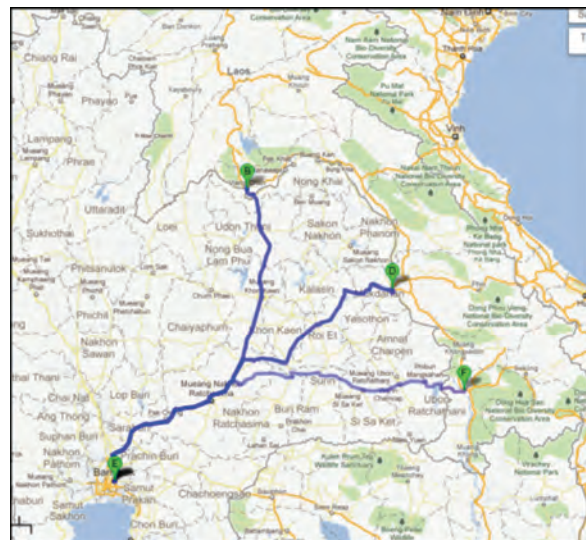
Corridor performance analyses

5 Corridor performance analyses

222. There are three principal trade routes that connect Lao PDR to neighboring countries and seaport gateways for overseas trade. The efficiency of these core corridors is therefore fundamental to the competitiveness of Lao PDR's supply chains and trade in general. The three main trade corridors are:

- The main trade route linking Vientiane and Bangkok in Thailand. Bangkok has daily feeder shipping services to Singapore and also regular services to the other hub ports in the region. The route is 650km long, which makes Bangkok the nearest port to Vientiane, compared to 1,060 km to Da Nang in Vietnam. Two other major routes also link Lao PDR to ports in Thailand, these are the Dansavang – Savannakhet – Bangkok corridor (part of the EWEC under GMS) and the Pakse – Bangkok corridor;
- The second major route is the North-South Economic Corridor defined and developed as a regional project under the GMS initiative. The corridor provides links to both China in the North and Thailand to the southwest. It offers possibilities to use road or river transport. A railway is now also under planning which will increase the connectivity options; and
- The third major route is the East-West Economic Corridor, also developed under the GMS initiative. It is the most developed corridor of the corridors in GMS and it connects Thailand, Lao PDR and Vietnam. Across Lao PDR the corridor connects the southern parts of the country to ports in both Thailand and Vietnam. It also serves as an important transit route between these countries. The latter two corridors intersect at Tak and Phitsanulok in Thailand (Figures 35).

Figure 35: Principle Lao PDR trade corridors assessed

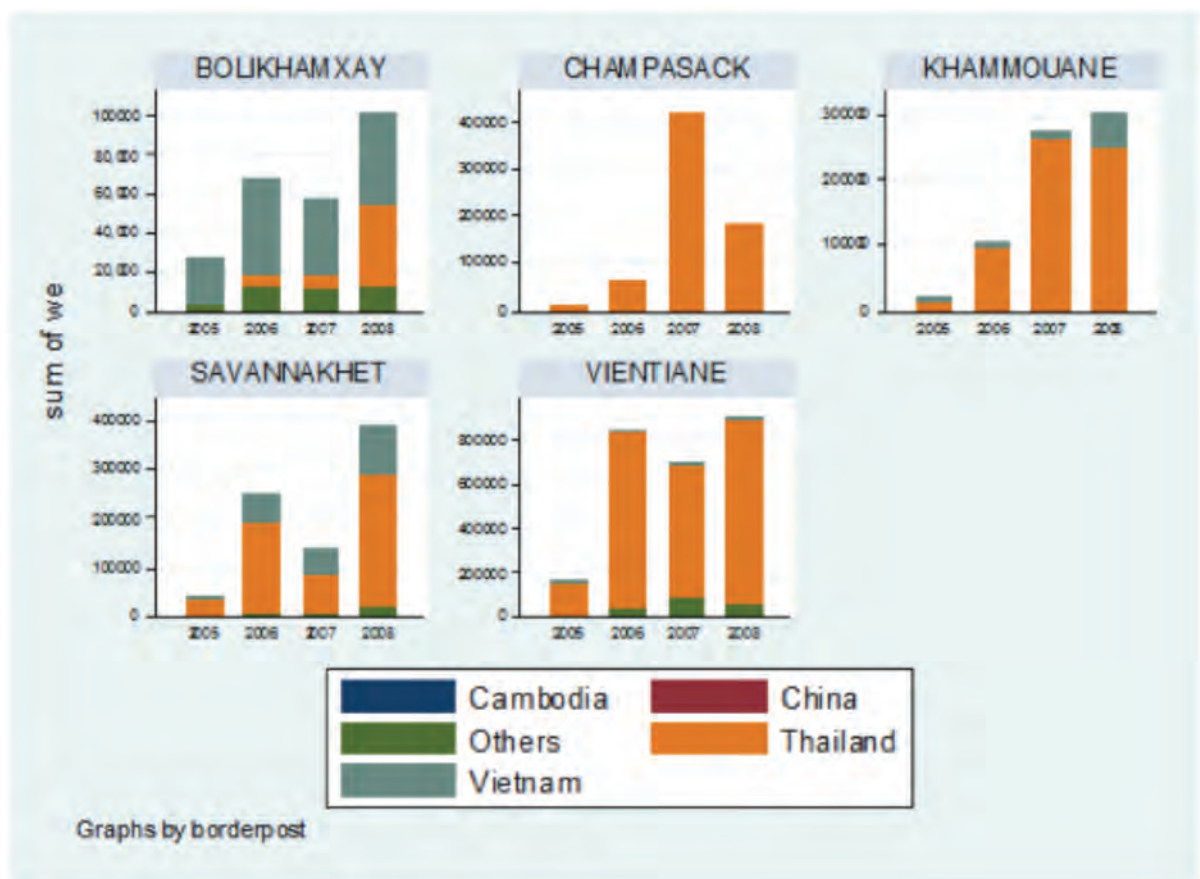


Source: Authors

223. The Thai corridors are the most important for Lao PDR. Some shippers transport more than 95 percent of their cargo through Bangkok and the remainder through Vietnam (EMC, 2011). The routes through Vietnam tend to be more expensive and relatively less efficient compared to those through Thailand.

224. The existence of a few trade corridors helps logistics performance by concentrating the small volumes that are generated into larger flows on a few trade routes (Figure 36 and 37). The logistics sector is one that has significant economies of scale as greater volumes can be carried on larger vehicles (trucks, rail, shipping) at decreasing unit costs. A corridor focus can also play another important role in serving as a spatial framework for cooperation between the public and private sectors to better realize broader social and economic benefits. Though there is no explicit corridor development strategy for Lao PDR, the country already benefits from a concentration of traffic on only a few routes through Thailand. Trade facilitation initiatives can therefore be framed around the performance of the main trade corridors that connect key economic centers in the country to its main trading partners.

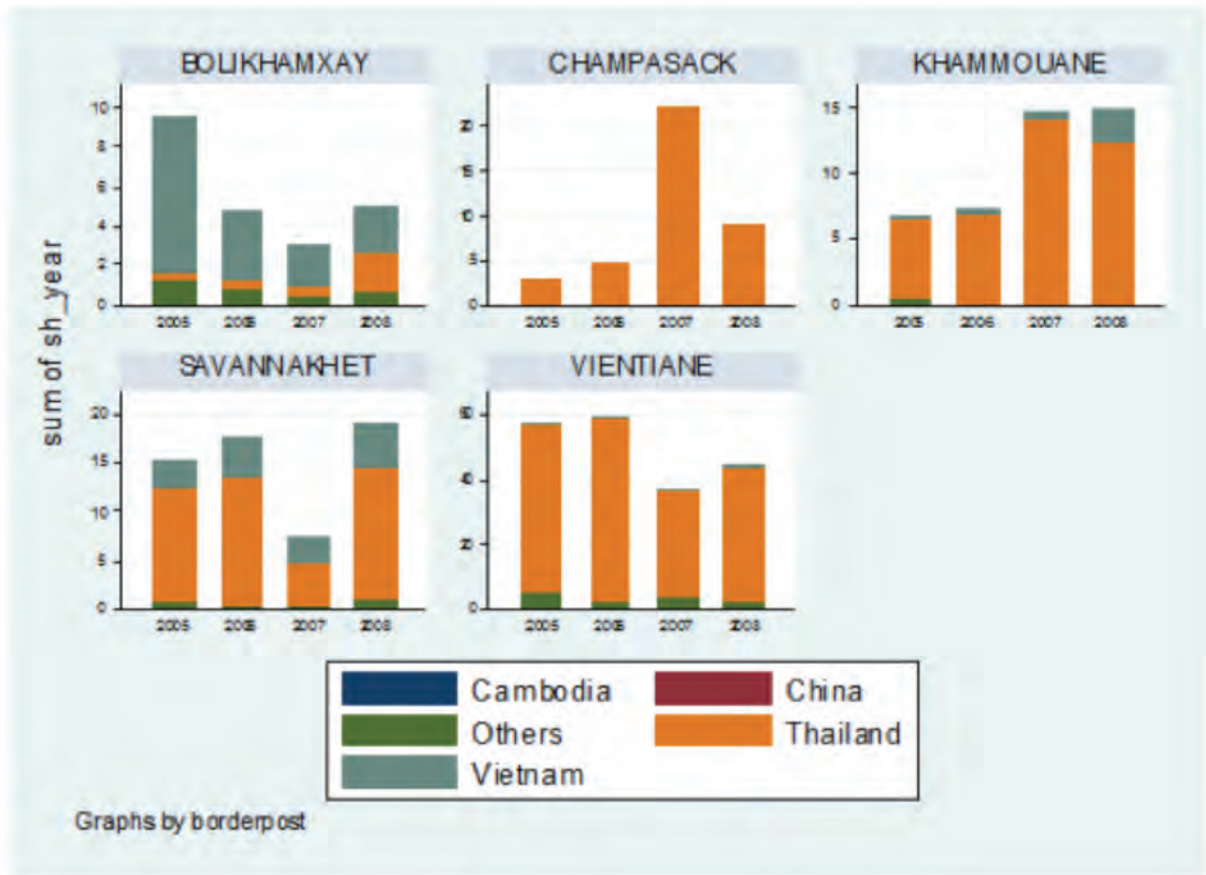
Figure 36: Import volumes through major customs checkpoints (tonnages)³³



Source: Own estimates, data from Lao PDR customs

³³ Assumes 8 tons/year per planted hectare, 16 tons per TEU, 20 percent of the land in catchment area is planted in fruits and vegetables

Figure 37: Import volumes through major customs checkpoints (percentage of total)



Source: Own estimates, data from Lao PDR customs

225. A performance assessment was conducted for the three major corridor linking Lao PDR to Thailand and through Thai ports to overseas markets. The three corridors that were analyzed between them carry more than two thirds of Lao PDR's international trade traffic (Vientiane-Bangkok; Savannakhet-Bangkok; and Pakse-Bangkok). The assessment focused on the following key indicators:

- Traffic flows
 - o Transit volumes
 - o Border crossing volumes at the main border crossing points
- Time performance
 - o Inland transport between major economic centers along a corridor
 - o Transit time within countries
 - o Border crossing times
 - o Delays at control and check points

- Prices
 - o Delivery to destination
 - o Cost associated with each activity and component of the transit operation.

226. The Vientiane – Bangkok corridor is clearly the most important in terms of volume of traffic. It handles some 800,000 tons of import cargo, followed by the Savannakhet corridor with just less than half that volume and the Pakse – Bangkok corridor with about a quarter of the volumes (Table 16). Some studies e.g. Thailand Ministry of Transport (2006) estimate the long term volume of traffic on the corridor to be as high as 60 percent of Lao PDR's trade traffic. The corridor is even more important in terms of value of trade passing through it. Bangkok is of course an important node in itself as it is Lao PDR's single largest trading partner. The corridor therefore handles both bilateral trade as well as Lao PDR overseas trade traffic.

Table 16: Containerized cargo volumes, distances and costs for major trade corridors for Lao PDR

Corridor	Trade volume (tonnage)	Trade volume (percent of total)	Distance (km)	Travel time (hrs)	Cost (US\$) per container
Vientiane - Bangkok	800,000	40	620	12	1,200
Savannakhet - Bangkok	395,000	19	645	12	1,100
Pakse - Bangkok	190,000	9	750	13	1,300

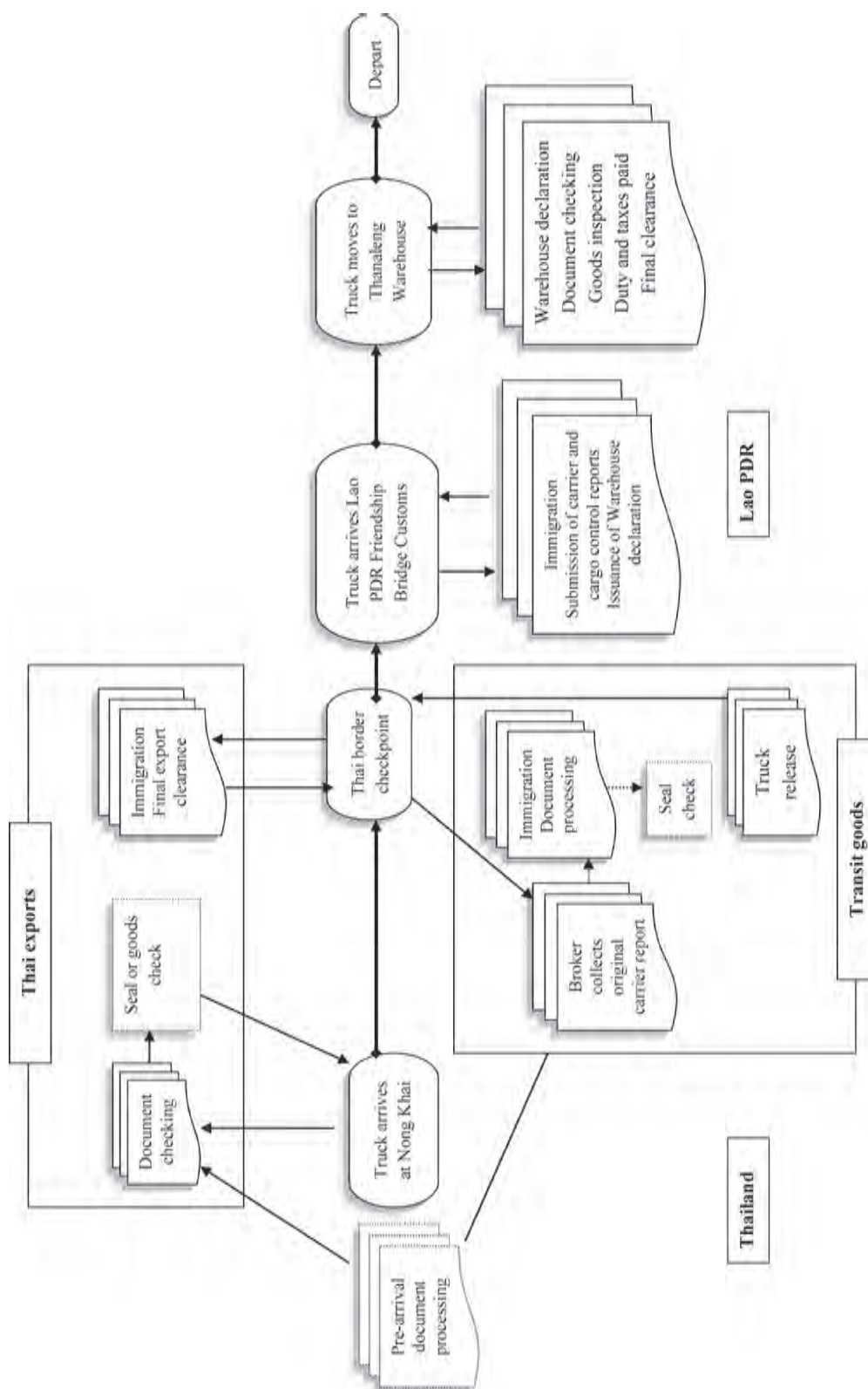
5.1 Vientiane – Bangkok corridor

227. The Vientiane – Bangkok corridor is the most important corridor for Lao PDR as it handles the most volumes of merchandise trade, both in terms of volume and value. It is comprised of a road linking Vientiane to Bangkok and Laem Chabang ports. The Vientiane – Bangkok corridor road stretches over some 620 km and is in good condition. Travel time approximates 12 hours. A recent survey conducted for the World Bank found that current practice is for trucks to travel from Bangkok overnight, arriving at the border in the morning (EMC 2011). This allows clearance of Lao PDR bound cargo to start as soon as the border opens.

228. Border processes are therefore potentially the most significant impediment to uninterrupted flow of traffic through the corridor. Of Lao PDR's twenty-seven border crossing points the Than-aleng – Nong Khai border post is by far the most important (Figure 38) as it is the gateway for the capital city, Vientiane. It handles a wide variety of consumer goods, manufacturing inputs, and construction material that are imported into Lao PDR, as well as garment exports and a significant portion of mineral exports.

229. The actual clearance process and infrastructure at the border varies between the Lao PDR and Thai sides of the other. This is not unexpected as the controls in Thailand are mostly to do with export clearance or processing of goods in transit whereas in Lao PDR it is about clearance for domestic consumption.

Figure 38: Border clearance process at Nong Khai – Thanaleng (Source: Authors, based on EMC (2011))



- Thai clearance process: The Thai border is designed with two main areas, a primary customs office at Nong Khai some 4km from the border and a customs checkpoint at the actual border. Thai customs and border management services are automated, and in general there is pre-arrival clearance of documents. Thai customs use a risk management system such that only a small proportion of goods are subject to physical examination. The process in Thailand differentiates between goods that emanate from Thailand and are exported to Lao PDR and those goods that are in transit through Thai seaports and territory on their way to Lao PDR. Due to automation, both processes are generally reported by shippers to be fast and efficient.
- Thai exports to Lao PDR: Trucks carrying normal export goods originating from Thailand stop at the customs house at Nong Khai for inspection. The process takes only a few minutes unless goods are selected for a physical examination. Once the clearance is completed the truck then proceeds to the border for final inspection and clearance.
- Transit cargo: In-transit goods proceed past the Nong Khai customs office directly to the border where document processing takes place. Data would already have been submitted and transferred from Bangkok to the customs house at the border, via the customs IT system. Once a truck arrives, brokers pick up the original carrier report from the truck driver and submit it together with the pre-cleared documents. Occasionally, Thai customs may check any seals on the truck after which the truck is then released. Generally, a survey that was carried out as part of the assessment found that the transit clearance process takes approximately 15 minutes.

230. In general, the clearance process at Nong Khai is smooth and efficient, with an electronic system facilitating clearance of both in-transit and export goods. The Thai customs department in Nong Khai is perceived by traders to be open and customer-friendly. Furthermore, none of the exported goods sampled under the survey were unloaded for inspection.

231. The Lao PDR clearance process takes place at two locations. Once across the Lao PDR-Thai Friendship Bridge from Thailand, the Lao PDR clearance process starts at the customs checkpoint at the bridge and continues at the customs warehouse at Thanaleng, some 4km from the border. Inbound goods obtain initial approval at the customs office at the Friendship Bridge, which is then followed by other clearance procedures at the Thanaleng warehouse.

232. The Thanaleng Warehouse is a major transshipment point for goods entering Lao PDR. The warehouse covers some six hectares for storage, segmented for particular types of goods (such as cars, consumer products, textiles inputs for garments). The warehouse is state-owned at present, though in the past it was privately held. Approximately 70-80 percent of the goods are unloaded at the warehouse and the containers stripped. The goods are ultimately loaded onto Lao PDR trucks and shipped further into Lao PDR. The reasons for unloading are the demurrage penalties shippers incur for keeping Thai trucks in Lao PDR. It is therefore cheaper to release the truck while the goods are going through the customs clearing process. However, the warehouse serves also as a consolidation point for some exports, though as noted above not so much for garment exports.

233. Generally, time performance for imports is longer than for exports as is the case in other regions. For exports, the procedures at the border are relatively straightforward and consistent. Manufactured goods and many of the agricultural products are loaded into a container at the origin and transported directly to the Thai ports with a stop at Lat Krabang or Bangkok port for transfer to the nominated forwarder or shipping line. The transit time averages 15 hours but depends on traffic congestion and border clearance time. At the border, the cargo is cleared and transshipped to a Thai truck. Otherwise the procedures include preparation of normal commercial documents, on site physical examination, and obtaining the certificate of origin required by importing countries that provide preferential tariffs under Generalized System of Preferences (GSP).

234. Export procedures have been simplified significantly, especially for manufactured goods such as garment, toys and electronic products. On average it takes about 2 days to complete all required

export procedures, which include preparation of normal commercial documents (Table 17), and on site physical examinations.

Table 17: Documentation for exports

Exporter	Bank	Customs office	Customs checkpoint
Request letter	Certify settlement of payment through banks	Physical examination	Examine documents
Invoice		Examination report	Release goods
Packing List		Approve export Declaration form D13	
Inventory accounts for imported raw materials under duty suspension regime			
Material used in production process			
Copy of Customs Declaration			
Form D52			

235. Clearance times for dutiable imports are a couple of days long but may be longer if technical certificates or an import license is required. On average it takes about 1-2 days for an importer to prepare all documentation required for normal dutiable goods not requiring an import license or technical certificates (Table 18). It then takes 1 day to complete

customs clearance procedures and remove goods from customs controlled areas. However, if imported goods are subject to technical certificates or import licenses, it takes about 1-5 days to obtain certificates/permits or a license from each of the relevant sectoral agencies.

Table 18: Documentation for imports

Importer	Bank	Customs checkpoint
Request letter	Certify settlement of payment through banks	Clearance procedures
Invoice		Payment of duties and taxes
Packing List		Payment of fees warehouse service
Import-Export License		
Enterprise registration certificate		
Annual import plan		

236. Limited border opening hours can cause delays. Although official working hours are 8:00am-4:00pm, actual operations are reported by the private sector to usually start late around 9:00 am and to halt for one hour for lunch. If documents are submitted after 4:00 pm, brokers typically pay overtime fees and, potentially, informal fees.

237. The Lao PDR clearance process distinguishes between goods liable to pay duties and taxes, and those that are exempt. Taxable goods are first cleared at the Friendship Bridge in order to

receive permission to enter the warehouse, where the official documents check and inspection occurs. For tax-exempt goods, a broker travels between the Friendship Bridge Customs Department and the Thanaleng Warehouse Customs Department, while the goods remain at the border. Customs utilizes a risk management program developed based on profiles determined by regional offices based on local information. For instance, customs has already introduced a green lane for known traders to expedite clearance while the rate of inspection is about 10 percent.

238. The actual clearance process was until recently paper-based though customs have recently introduced the ASYCUDA World system. Stakeholders expect that automation of the process will reduce clearance times as the new automated customs system becomes fully operational. Still, clearance times are generally low by standards of other landlocked countries. Surveys of inbound cargo in mid 2011 (EMC 2011) observed clearance times of less than 5 hours, which is a drastic reduction from the Time Release Study (TRS) of 2009 which found that cargo clearance times were around 77 hours at Thanaleng.

239. However, further efficiency gains are possible at Thanaleng. Field surveys suggest there is unequal treatment of shippers, with some seemingly getting preferential treatment. There are two possible explanations for this, firstly relationships between officers and some brokers and the payment of informal fees could expedite processing. Customs clearance at Thanaleng is reported by the private sector to be facilitated by personal relationships between brokers and customs officials throughout. As a result, unequal treatment has led some private sector firms to praise customs, and others to criticize customs for favoritism and irregular practices. Some freight forwarders have reported that they have no problem dealing with customs. Other freight forwarders have said that treatment is not equal, and that their goods “take up to four times as long to clear”.

240. Payments of informal fees to facilitate and expedite clearance are reportedly in the range of 5,000 Kip to 100,000 Kip, depending on the particular task during the import process. In addition, private sector players suspect other informal fees were paid at higher levels to accelerate the clearance process, although this was not reported. Generally, there appears to be a positive correlation between the amount of informal fees that brokers have to pay to clear goods, and the number of customs officials a broker must interact with.

5.2 Savannakhet – Bangkok corridor

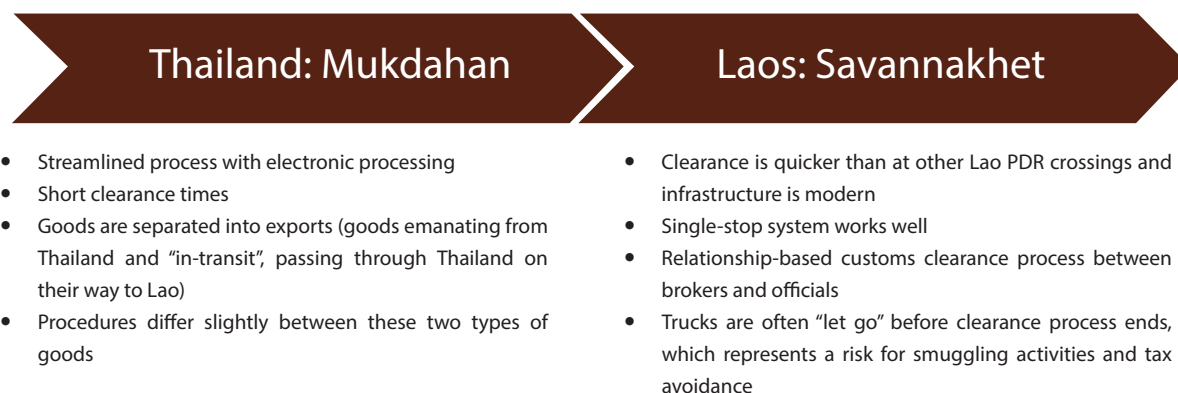
241. The Savannakhet – Bangkok corridor forms part of the GMS East-West Economic Corridor linking Thailand, Lao PDR and Vietnam. The Bangkok – Savannakhet portion is some 645 km long, largely in Thailand. The routes forming the corridor, AH1, 2, 202, 219, 2045, 232, 2044, 12, and 212 are all in good condition. The average trip length is 12 hours and most truck movements are overnight, arriving at the border in the morning or early afternoon.

242. The corridor handles transit, import and export trade for Lao PDR. Currently, the trade flows are dominated by Lao PDR exports, mainly copper. Imports are dominated by construction machinery, oil, and metal products as well as inputs for the mining industry. The corridor also handles transit traffic between Thailand and Vietnam, though overland trade flows between the two are still small. It is important to recognize that the overland transit route through Savannakhet faces competition from the all sea route between Vietnamese and Thai ports, which is often slower but cheaper.

243. Lao PDR is currently developing its first Economic Zone near Savannakhet on the border with Thailand. This zone has been in planning since the construction of the 2nd Friendship Bridge was first proposed. The Zone is designed to have both a free trade area and an export-processing zone. The initial component, a commercial and industrial park, was developed by a private investor and opened at the end of 2011. However, the value proposition that would attract industry to this location remains unclear.

244. Similar to the Vientiane – Bangkok corridor, there are no major hurdles en-route leaving the border crossing as the likely physical barrier to seamless movement. Much like at the Nong Khai-Thanaleng crossing, the Mukdahan-Savannakhet border crossing is a juxtaposed border post separated by the Mekong River. The Thai and Lao PDR sides are connected by the Friendship Bridge II. Both the Lao PDR and Thai sides of the border are modern, well run and the clearance processes generally smooth. It typically takes about 15 minutes to clear exports through the checkpoint.

Figure 39: Border description at Mukdahan/Savannakhet

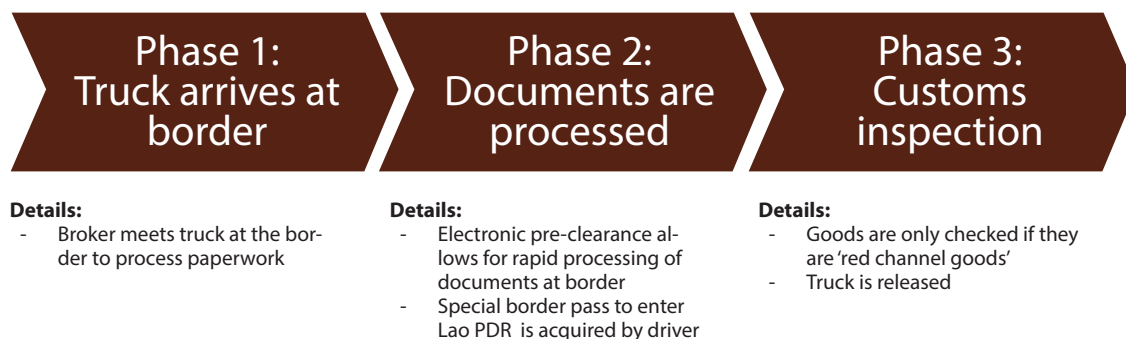


Source: EMC (2011)

245. Thai clearance process: similar to the Vientiane – Bangkok corridor, the Thai process distinguishes between bilateral trade between the two countries and transit traffic passing through Thailand (Figure 39). However, both processes rely on electronic pre-arrival clearance, which minimizes processing time once trucks get to the border. Previously the Thai border at Mukdahan was

designed in two locations with the customs office 4 km from the border where final checks and clearances are issued. However, since 2012 all functions are now integrated with modern equipment, including a scanner and a weigh station for trucks, both of which are utilized during the clearance process. Both transit goods passing through Thailand and Thai exports are cleared at the Mukdahan Customs House.

Figure 40: Mukdahan normal goods clearance process



Source: EMC (2011)

246. In general, the clearance process is speedy at Mukdahan facilitated by a small network of clearing agents, forwarders and trucking companies (Figure 40). Clearance brokers on the Thai side collaborate with partner companies in Lao PDR, and there is good cross-border communication. The only holdups at times occur at the scanner when queues of trucks may form. When dealing with transit shipments, customs brokers may accompany trucks to the border and vice versa to submit original documents and facilitate the checking of seals. All trucks are checked to see if seals are intact before they are allowed to pass through the border.

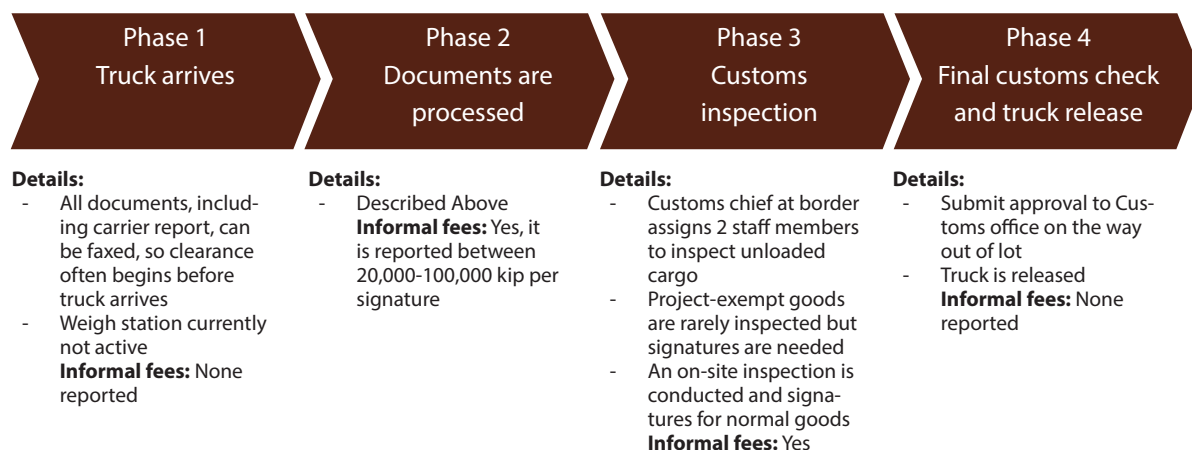
247. Lao PDR clearance process: the Lao PDR border crossing point at Savannakhet has the most modern and well-equipped infrastructure of the major Lao PDR border facilities. The clearance processes take place in a centralized facility, which houses all operations. The existing customs infrastructure and the access roads are relatively new. The border has a large customs warehouse and weigh station for trucks. There are cranes for transshipments of goods on site³⁴. The Savannakhet border post is a primary transshipment point on the East-West Corridor for goods passing through Lao PDR on their way to Vietnam and vice versa. Truck operators or their agents pay fees for such transshipment.

248. The clearance process at Savannakhet is streamlined, with a single-stop system in use. It typically takes about 1.5 hours to clear goods

from the moment a truck arrives to a release order being issued (EMC 2011). The clearance process at Savannakhet is summarized in Figure 41. Similar to Thanaleng, the speed of the clearance process depends in part on relationships between brokers and government officials. Brokers representing large freight forwarding companies or shippers in particular reportedly have well established relationships. As a result, it is possible for release orders for transit trucks in particular, to be issued before a truck has arrived at the border. Generally, the personal relationships between customs, shipping and forwarding companies ultimately facilitate the ease of doing business for brokers who work for the large firms. On-the-ground relationships are further strengthened by the requirement for declarants to appear in person before officers, even where other means of managing the clearance process are feasible (EMC, 2011). However, some brokers consider these procedures as 'customary in Lao PDR culture even when informal payments are made to border officials.

249. One major complaint from private sector stakeholders is the limited hours of operations at the Mukdahan – Savannakhet border. The limited hours at times prevent trucks from making it all the way across Lao PDR to the Vietnamese border before closing time, thus delaying shipments by several hours. The local chamber of commerce is planning to lobby the provincial and national government to extend the border hours.

Figure 41: Border clearance process at Savannakhet



³⁴ One large freight forwarding company uses its own crane and yard for transshipments.

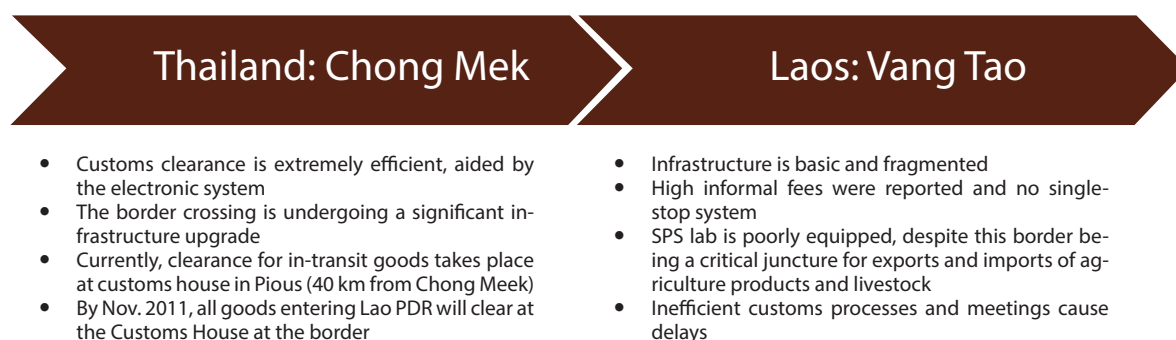
5.3 Pakse – Bangkok corridor

250. The Pakse – Bangkok corridor handles a significant amount of Lao PDR agricultural exports, especially coffee as well as imports of consumer goods. The border within this corridor Chong Mek (Thailand) - Vang Tao (Lao) is a major gateway for Lao PDR agricultural exports, which pass through Thailand to foreign markets. Unlike the Nong Khai-Thanaleng border crossing and the Mukdahan-Savannakhet crossing, which are connected to Thailand via bridges, the Chong Mek-Vang Tao crossing is a land border. Given the agricultural nature of the regional economy there are huge variations in traffic volumes on the corridor. However, generally traffic flows are more balanced compared to the other two corridors. The corridor itself is some 750 km long

between Pakse and Bangkok, approximately 700 km inside Thailand and the rest between the border and the town of Pakse. It takes approximately 13 hours driving time to the border, and most trucks travel by night to arrive at the Lao PDR border in the morning.

251. There is a significant contrast between the quality of infrastructure on the Thai and the Lao PDR side of the border with better facilities and roads on the Thai side compared to Lao PDR. Of the three corridors assessed, Vang Tao has the least developed facilities. The road to Pakse is also not in very good condition. The clearance processes on either side of the border are summarized below (Figure 42).

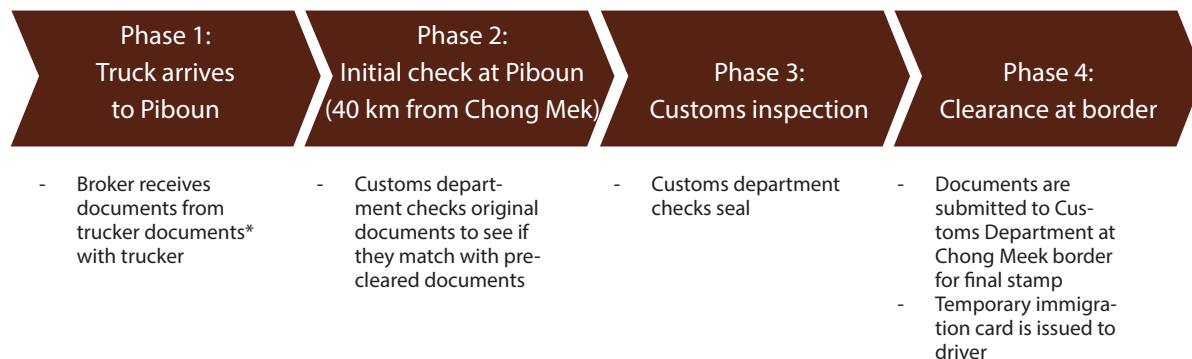
Figure 42: Border dynamics at Chong Mek/Vang Tao



252. Thai clearance process: the clearance process in Thailand is at two locations, 40km apart. There is a customs office in Piboun (40 km from the Chong Mek border) that issues an initial clearance for goods in transit. Normal export clearance is done at the customs office at the Chong Mek border itself (Figure 43). The practice is therefore similar to the procedure on the Savannakhet – Bangkok corridor. However, Thailand is presently developing new

infrastructure at Chong Mek, including a warehousing facility and expanding the truck parking lot at the border for exports and imports. Once the construction is complete (expected late 2011), Thai customs will shift its operations totally to the border, including transit clearance. It will therefore be possible to have all export and in-transit procedures take place at the border.

Figure 43: Export process in Chong Mek



253. As a result of electronic clearance, export goods are quickly processed and cleared directly at the border in Chong Mek. Thai customs use a risk management system and in most instances goods are quickly released without any delays.

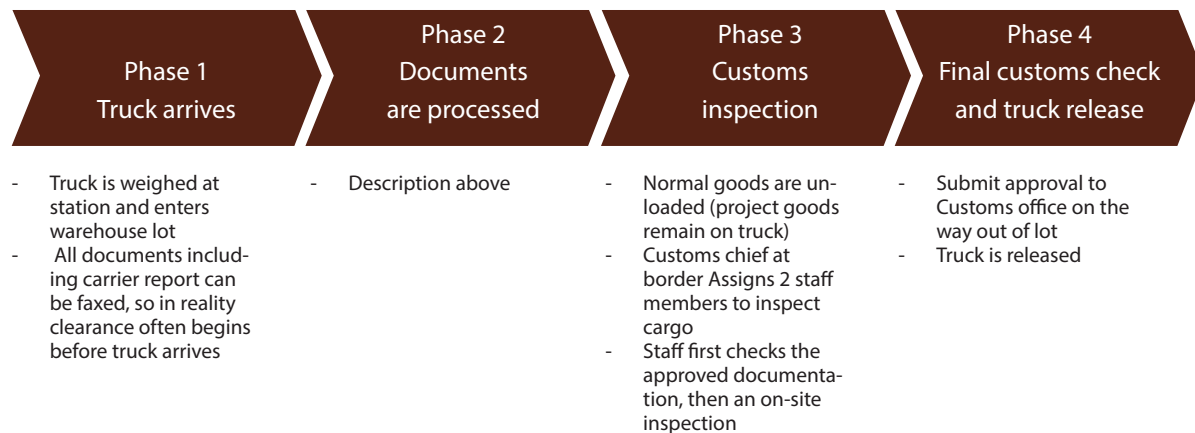
254. Lao PDR clearance process: the Vang Tao border post has relatively poor infrastructure compared to other Lao PDR major border posts.³⁵

The border facilities include a warehouse, weigh station, and quarantine and sanitary facilities. The border is linked to Pakse by a paved but narrow and seemingly dangerous road. The road is approximately 40 kilometers long. There is a mobile anti-smuggling office along the road between Vang Tao and Pakse, where one additional stop must be made, as part of the clearance process. There are additional weigh stations along the route.

255. The clearance process at Vang Tao is generally longer than at other Lao PDR border crossing points. The process (Figure 44) is generally longer than at other border posts and is often accompanied by the requirement to pay informal fees. Clearing agents report making payments of up to US\$ 62.50 in informal fees to clear normal goods that meet weight requirements. The lack of an electronic clearance system in Pakse leads to a long chain of informal payments. While the total cost is not very high, brokers are subject to the whims of officialdom. Like in Savannakhet, brokers in Pakse do not consider informal payments to be 'required', though they choose to make them. The survey found that most informal payments at this border crossing occur at the weigh station. When containers weigh more than 25 tons, forwarders feel they have to pay 5,000 baht or higher. Informal payments were also expected at every step of the clearance procedure, in amounts ranging from 10,000 to 100,000 Kip, depending on the broker and the signature needed.

³⁵ Given the poor state of facilities at Vang Tao there is private sector interest in developing logistics infrastructure at the border post. A proposal has been made to develop an ICD with customs clearance and storage infrastructure.

Figure 44: Clearance process in Vang Tao



5.4 Comparative assessment of corridor performance

Cost Performance

256. Lao PDR benefits from lower deep sea shipping routes available through Thai ports. This is particularly significant when freight rates drop as they did in 2009 as a result of the global financial crisis. Examples of current rates for typical shipments from Bangkok to typical destinations are shown

below (Table 19). These incorporate the basic discounts but not the larger discounts available to large foreign importers. The rates are also for basic services. These will vary for shipping lines offering faster or more reliable services as well as for those offering slower, less reliable services.

Table 19: Typical sea and air freight rates from Bangkok

Mode	To	Unit	Currency	Current Range
Ocean from Bangkok	Rotterdam	FEU	US\$	3,650
	Antwerp			2,450
	Rotterdam	TEU	US\$	1,850
	Antwerp			1,450
	U.S. East Coast	FEU	US\$	3,700
	Yokohama	FEU	US\$	1,350
	Shanghai	FEU	US\$	1,450
	New York	Kg	US\$	4.30
Air (Vientiane)	Singapore	Kg	US\$	2.30

Source: Authors estimates from various sources

257. Tight integration between the Lao PDR and Thai logistics systems and traffic allows Lao PDR to overcome the limitations associated with its smaller volumes. Lao PDR traffic is able to piggyback on the higher volumes and greater frequency of services associated with Thailand's trade. In addition, international buyers also tend to negotiate rates for shipments from Lao PDR which also drives down prices, especially for exports. As a result, Lao PDR shippers face mostly overland logistics costs.

258. Corridor performance analysis typically provides measures based on price, transit time and reliability from a shipper's viewpoint, where a shipper is an importer or exporter. The price is the amount the shipper pays to deliver his shipment from its origin to its destination through each link and node in the transport/logistics chain, including both formal and informal payments. The cost performances of the three main corridors are shown below.

Table 20: Lao PDR major trade corridors - cost per ton/km

Corridor	Distance (km)	Travel time (hrs)	Cost (\$)	Cost US cents/tkm
Vientiane - Bangkok	620	12	1200	13
Savannakhet - Bangkok	645	12	1100	11
Pakse - Bangkok	750	13	1300	12

Source: Own estimates

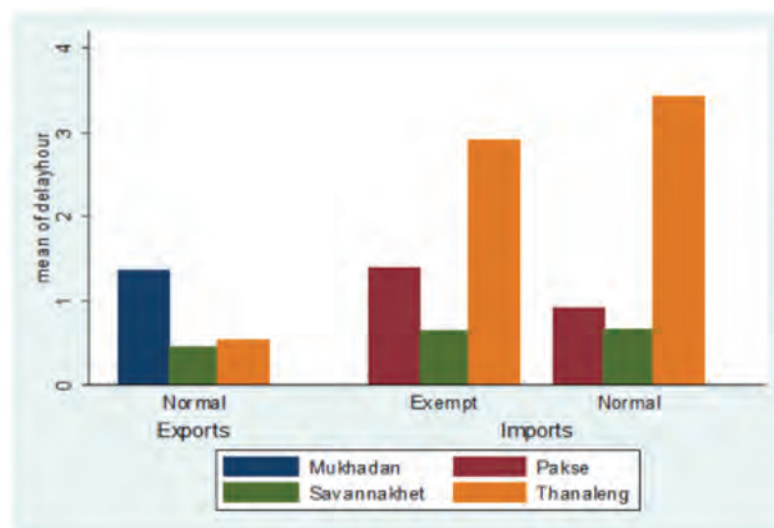
259. The prices are higher than faced in other landlocked regions. This is a reflection of scale issues discussed above as well as significant volume of empty movement of containers due to time limits imposed by shipping lines, as described below.

Time performance

260. The trade corridors between Lao PDR and Thailand perform well in terms of time. Transit times between Bangkok and Vientiane are the minimum possible, except when vehicles arrive when the border crossing points are closed. In this case clearance is performed the following morning and typically takes less than one hour for exports and three hours for imports.

261. The time performance for the clearance of cargo at the main border posts of Lao PDR is generally fast. At land borders the clearance time averages 2 hours with most cargo cleared within 3 hours if there is no road congestion and at most half a day for most cargo. The average time for clearing imports through the international air gateway is 2 hours with most cargoes cleared in 1-3 hours. The clearance time at seaports in Thailand is greater averaging about two days with most cargo cleared within 5 days. Most of the variance in times is associated with the type of commodities and the diligence of the shipper in preparing the documentation (Figure 45). Overland transit times are as indicated above, averaging 12 hours in most cases. Total transit time from the factory to North Europe is 22-26 days while for Japan it is only 14-18 days.

Figure 45: Lao PDR border posts clearance times for different categories of goods



Source: Own estimates, data from Lao PDR customs

262. Yet, the corridor assessments reflect the state of flux border management systems are in, with efficient processes at some locations and a combination of manual and automated processes at others. The degree of transparency of clearance procedures is still limited and clearing times continue to depend on relationships between customs brokers and individual customs officials. Customs brokers with relationships do not need to complete all documents and procedures in order to clear goods. For others these processes are quite time consuming. It is expected that the limited transparency will be reduced, with the introduction of the ASYCUDA World and Single Window systems, which will allow for the electronic filing of documents.

263. There are various pressures on the system that help minimize time taken in Lao PDR corridor performance. The first is due to shipping line schedules, which require exports to be available at the port by specific deadlines. The issue is therefore how exporters are able to meet the tight timeframes imposed by the shipping lines. As a result, some exporters call for a container when the shipment is ready, and are able to achieve a 48-hour turn-round time for Bangkok – Vientiane – Bangkok. However, there are two scenarios: (i) regular shippers who have developed well organized systems, and have shipments in

both directions, logistics systems are closely integrated with manufacturing: synchronized movement of inputs, production, and export; and (ii) other shippers who most probably face higher costs.

264. The second pressure is from the strict container return limits again imposed by shipping lines. Shipping lines serving Lao PDR impose container deposits, which can range from 30,000 to 100,000 baht per container. Trucking companies in Bangkok (which are largely responsible for bringing goods into and out of Lao PDR) do not negotiate directly with shipping lines (which own the containers and set container detention policies) with respect to the procurement of containers; rather, it is the responsibility of the exporter to strike a deal with the respective shipping line and to set the container detention policy with that line. Exporters negotiate with shipping line agents in the country of loading, with respect to how many days the container will be given to the trucking company to take goods from the Thai port to Lao PDR, and back. Thai trucking companies take control of the container at the port of discharge (Bangkok Port, Laem Chabang) after they pay the container deposit to the shipping line agent in Thailand. Deposits are usually paid on the day of the container arrival or the day after arrival and returned when the container is returned.

265. Both the loading and unloading of goods from the container is the responsibility of the exporter and importer, respectively. However, trucking companies are responsible for damage to containers and must return containers to shipping lines within a fixed time period (usually 3-5 days for a round trip to Lao PDR). While the responsibilities of the trucking companies are not outlined in a formal contract, they risk losing a portion of their initial deposit if they fail to meet their obligations. The consequences of returning damaged containers or returning containers after the due date is a stiff fine. For damaged containers, for instance, firms pay US\$ 75 and up. In other cases, trucking firms must pay container cleaning costs (approximately US\$ 17), which are detracted from their original deposit. Thai trucking companies have complained that they do not have sufficient leverage (or legal recourse) to argue with the shipping lines over these additional fees.

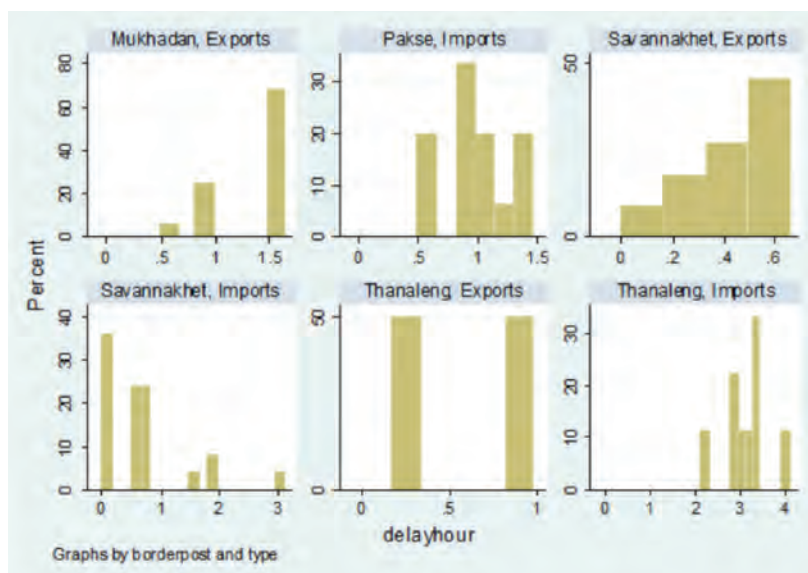
266. Containers from third countries that pass through Thailand on their way to Lao PDR must do so directly. Thai law does not allow transshipment to occur on Thai territory for in-transit goods to Lao PDR. By contrast, goods that emanate from Thailand can be transshipped at Thai border crossings without any special licenses or permits before entering Lao, though this rarely occurred during the survey observations.

Reliability

267. Though Lao PDR has low average clearing times, the variance of such times is still significant. Lao PDR has made significant progress in trade facilitation, reducing the cost, time and uncertainty associated with clearing cargo at the border especially for the major exports and their imported inputs. While average clearing times are acceptable uncertainties remain. Officials are not always available, corrections of errors in documents are time consuming and coordination between customs and other border agencies is lacking. In addition, many documents are still processed manually, procedures for trade licensing are cumbersome, officials at the border lack proper supervision, and the infrastructure is inadequate at many crossings. However the magnitude of the variance in clearance times is not as high as in other developing countries.

268. Clearance times are generally reliable except at Thanaleng. Part of the corridor assessments data was collected on the variance of border clearance times (Table 21, Figure 46). While the sample sizes were small, some general patterns were discernible, namely that reliability was greater at Savannakhet and Vang Tao and relatively poor at Thanaleng. This is consistent with the findings of the more statistically representative Time Release Study that was carried out in 2009.

Figure 46: Lao PDR major border posts - distribution of clearance times



Source: Own estimates, data from Lao PDR Customs

269. The clearance times at Thanaleng are substantially greater than for the other crossings due to a combination of inefficiency and the use of the facility for temporary storage. The time is not affected by the status of the cargo, i.e. dutiable, non-dutiable.

Table 21: Processing time for different crossings (days)

Checkpoint	Arrival to Removal		Submission to Approval	
	Mean	Std Dev	Mean	Std Dev
Natuey	0.95	1.63	0.59	1.61
Thanaleng	1.69	3.19	0.79	2.13
Friendship Bridge II	0.21	0.49	0.14	0.45
Densavan	0.33	0.33	0.14	0.22
Vang Tao	0.51	2.25	0.17	0.51

Source: Time Release Study, Lao PDR, 2009

270. The principal delays occur where there is the need to obtain approvals from other government agencies (Table 22).

Table 22: Time for other government agency approvals

Agency	Mean	Std Dev
Industry and Commerce	2.13	3.79
Public Health	0.70	1.76
Planning and Investment	5.84	11.68

Source: Time Release Study, Lao PDR, 2009

271. Ongoing customs automation and introduction of a single window system in Lao PDR offer an opportunity to reduce border clearance times as well as improve reliability and predictability of the processes. The systems when fully operational will address the two main contributors to weak reliability: i) subjectivity in the clearance process due to face to face meetings between declarants and officialdom; and ii) the need to submit documents to different offices. ASYCUDA World when fully operational will address the first while the Single Window system will make it possible to submit documents at once to all relevant agencies.

Box 2: Bonded Warehouses

Bonded warehouses can be designed to handle various types of goods including those that are containerized, bulk, or need refrigeration. They can also be used to coordinate transport and other logistics services, including document processing. The various functions in bonded warehouses have to be carried out under authority of customs. The only bonded warehouse in Lao PDR is located in Thanaleng. Currently a privately operated bonded warehouse is not allowed.

A dry port is an ICD that is granted under law the right to act as an origin and destination for maritime cargo. In other words, the Marine Bill of Lading can have the dry port and as the port of loading or unloading and the Shipping line is liable for the loss of the cargo under the International Convention for the Unification of Certain Rules of Law relating to Bills of Lading signed at Brussels on 25 August 1924 as amended by the Protocol signed at Brussels on 23 February 1968 ("the Hague-Visby Rules").

Presently dry ports are not defined under any law or regulation in Lao PDR. However, government through the Department of Transport is revising the Land Transport Law in order to include all provisions for dry ports. Other agencies that have to be involved are Department of Customs, Ministry of Finance; Department of Immigration, Ministry of Public Security; Department of Quarantine, Ministry of Agriculture and Forestry; Lao PDR National Chamber of Commerce and Industry; and the private sector especially the Lao PDR International Freight Forwarders Association (LIFFA). These are the agencies whose close involvement will be critical to the success of any shared logistics platform or facility.

Some of the important factors to consider are the following:

- Having necessary institutional, legal and regulatory arrangements in place. These may include a bilateral agreement with Thailand, as well as agreements covering customs and border management cooperation / neighboring countries;
- Introducing integrated IT systems, between agencies both in the same country and between countries. Typically, such a system could be designed as a single window system, similar to the ASEAN Single Window initiative;
- Location should have easy access with minimal congestion - location at a railhead, or junction of major roads is recommended; and,
- Availability of space including for future logistic activities - the facility should be furnished with necessary handling, storage, stacking, control equipment as well as offices and other ancillary facilities



Conclusions for improving
corridor and supply chain
performance in Lao PDR

6 Conclusions for improving corridor and supply chain performance in Lao PDR

272. The corridor performance assessment and supply chain analysis pointed to two fundamental challenges for trade logistics in Lao PDR: small volumes and an imbalance in traffic flows.

These problems are not unique to Lao PDR. They occur in many relatively small economies, especially those that are landlocked or have long distances between ports and centers of production/consumption. Addressing these challenges requires a combination of improvements in logistics services and coordination of traffic flows to consolidate movements and capture economies of scale. Significant advances in trade facilitation have eliminated most of the constraints associated with being landlocked but in the process generated greater interdependence between Lao PDR and its neighbors. Collaboration with its neighbors offers Lao PDR access to:

- new markets and distribution channels;
- logistics services with much greater scope and scale; and,
- regional suppliers of a broad range of inputs used in the production of exports.

273. The challenge is to ensure access to these benefits through inter-governmental collaboration. While GMS and ASEAN have created frameworks for collaboration, it is necessary to deepen this collaboration through bilateral initiatives.

274. Opportunities for increasing export competitiveness through transport and trade facilitation can be grouped into four categories:

1. Regulations and regulatory processes;
2. Infrastructure investments and productivity;
3. Logistics services and facilities; and,
4. Supply chain architecture.

275. The first category concerns improvements in efficiency that can be achieved by simplifying regulations and regulatory procedures affecting both trade and transport. Much of the effort so far has focused on improving border crossing procedures. The second refers to the trade corridors, a large portion of

which are located outside of the country. Most of the improvements in capacity and productivity have been introduced by neighboring countries with the exception of the East-West Corridor. The third refers to basic logistics services, e.g. transport, storage, clearing and forwarding much of which is provided by neighboring countries. Efforts to improve domestic services are limited by the size of the market and the type of exports. The fourth category refers to both the inbound supply chains for inputs to production and outbound supply chains for the shipment of exports. Efforts to improve performance have generally focused on reducing costs rather than increasing value, which is consistent with the overall strategy for export competitiveness.

276. The following recommendations assume a gradual shift in the competitive strategy from volume to value.

Because of limitations on production due to availability of labor with the requisite skills and land suitable for cultivation, the growth in exports will increasingly focus on value rather than volume. Since higher value goods usually require better quality logistics services and more specialized supply chains, the recommendations focus on improving the time and reliability of the logistics services and the variety and integration of supply chains.

6.1 Regulations

277. There has been sufficient progress in reforming and modernizing customs procedures and in reducing restrictions on the cross-border movement of vehicles that the borders are no longer considered to be a major impediment to trade. However, this does not imply that further improvements are not required. It is important that current efforts continue in order to improve enforcement and ensure effective regulation as the volume as the value of trade increases and international standards become more complex. Border management procedures will become more complex as additional certifications are required for export of specific products, especially food, and to specific trading partners. There is also expected to be a higher level of

scrutiny of imports as informal payments are replaced by proper enforcement. Also, as trade shifts towards smaller shipments of higher value goods, both imports and exports, then the number of transactions will increase as well as the incentives for misrepresentation. If the current clearance times are to continue to decrease, then coordination between government agencies, automation of document entry and processing, integration of ICT systems and sophistication of risk management must be increased significantly.

278. Regulation of transport activities, such as axle load limits, annual inspections and licensing of vehicle operators are set according to domestic requirements, but coordination with neighboring countries will become important for encouraging regional competition and unhindered movement across borders.

279. Improvements in government processes and transparency must be complemented by an improvement in the standards for logistics services provided by the private sector. The current practice of requiring only a business license to become a clearance agent should be replaced by a profession license issued by customs that requires specific skills and training and must be updated periodically. Similar standards should apply to those acting as freight forwarders but these can be introduced through the trade association, e.g. LIFFA, which would certify that its members apply specific business practices. Many countries also introduce financial requirements in the form of a minimum volume of business and/or a performance bond, but given the small volume of traffic any such requirements should be limited so as not to discourage competition.

6.2 Infrastructure

280. The trade corridors linking Lao PDR with Thai seaports and airports perform well in terms of time and reliability. Transit times between Laem Chabang and Vientiane, Savannakhet and Pakse are predictable and trucks can complete a one-way trip in a day (travel time is typically 12 hours). Typical clearance times at the border are less than one hour for exports and about two hours for imports. The only significant delays occur when vehicles arrive after the border crossing points are closed. As result, the greatest concern is cost. In this regard, informal

payments, while prevalent, do not appear to be significant component of the cost of transport. The cost for road transport is higher than in Thailand but the premium is due primarily to the small volume of traffic and the imbalances between export and import traffic volumes.

281. The infrastructure along the three corridors is well developed including the port of Laem Chabang, the ICD at Lat Krabang, the highways providing access to Lao PDR and the border crossing facilities at Vientiane and Savannakhet. However, additional improvements are needed for the crossing at Pakse (Vang Tao-Chong Mek) to allow unhindered movement of agricultural products, especially perishables. This will require not only the introduction of facilities that speed the processing but also the co-location of facilities for inspection and testing without breaking the cold chain.

282. The capacity of the key corridors has increased and productivity of the infrastructure has steadily improved. This process is expected to continue. The capacity and performance of the corridors could increase significantly if unit container train operations were introduced but these require significant investments and changes in operation as discussed below.

283. Various proposals for facilities to be built in Lao PDR or near to its border that would facilitate international and transit trade have been presented over the last decade. These include road-based intramodal facilities and rail-based intermodal facilities. Their function varies from logistics hubs to inland container depots (ICDs), from dry ports to trade-related zones. The problem is that most of these proposals are conceptual and lack a strong business case. Furthermore, the only examples of comparable facilities in neighboring countries are intended to serve a much larger volume of traffic.

6.3 Logistics services

284. The logistics services offered by 3PLs in Lao PDR are limited in scope and sophistication. This is attributable to the limited market for their services and opportunities for comparative advantage. Shippers and consignees in Lao PDR have ready access to Thai 3PLs that can offer a full range of ser-

vices with the exception of cargo clearance. Furthermore, there is no restriction on cross-border investments and joint ventures that would allow domestic 3PLs to offer a full range of services. Although global 3PLs have a very limited presence in Lao PDR, they are active in the Thai market and offer services in collaboration with local 3PLs in both Thailand and Lao PDR. Given the level of competition and sophistication of the Thai logistics sector, the quality of logistics services should not be a constraint to the growth of Lao PDR's export trade.

285. Improvements in the quality and scope of the services provided by domestic 3PLs can be achieved through collaboration. Cross-border joint ventures are the most direct but there is also potential for strengthening domestic enterprises. This can be done through training initiated through LIFFA, which is a member of FIATA. LIFFA has access to various standard curricula available to national logistics associations. It can also take advantage of the variety of courses offered in Bangkok including those provided by TIFFA (Thailand International Freight Forwarding Association) through its ITBS subsidiary.

286. The areas in which improvement in logistics services can have the greatest impact is storage and consolidation. As mentioned above, various proposals have been put forward to develop facilities to provide these services. What has been lacking is a coherent strategy for introducing these services together with a well-defined set of trade-related objectives. In the short term, logistics would contribute to the growth in trade by reducing the time and cost for delivery of exported goods as well as imported inputs for the production of these goods. In the medium term, logistics should contribute to the increase in value of the exports as well as the value added in the country.

287. Since most of the imported inputs and exported goods are shipped in containers, the focus should be on improving the efficiency of container logistics. The problems to be addressed are reducing the amount of empty container movements and increasing the utilization of container capacity for LCL shipments. The problem of empty containers is due to both the trade imbalance and the way in which shipping lines manage the box inventory. Demurrage charges reflect the opportunity cost

of boxes assigned to specific routes and trades. In order to reassign a container delivering import cargo to a specific export cargo, the two shipments must use the same shipping line and size and type of container. There must also be a short time between when the container is unloaded and when the export cargo is available for loading and, the unloading and loading operations must take place fairly close to each other. While it is relatively easy to setup a yard for storing empty containers that can subsequently be used to load exports, there must be sufficient volume to ensure that the dwell time for boxes is relatively short. There must also be an incentive for the shipping lines. This is currently not the case, since the shipping lines do not incur the additional cost for the empty backhaul and are able to offer next-day delivery of empty boxes to their clients.

288. While it is unlikely that the proportion of empty container movements can be reduced significantly, it is possible to reduce the number of container movements through transloading. This requires the development of a cross-docking facility at Lat Krabang or preferably Laem Chabang, where the contents of the import containers can be transferred directly to a domestic container of the same size or a closed van of similar proportion and then sealed for movement in transit to Lao PDR. After delivery the domestic container/closed van can be used to carry unitized or loose cargo to the port or to other destinations in the region. A similar arrangement could be used for export cargo that would be transloaded to ocean containers at the port. In order to introduce this system, customs must agree to the transfer of cargo from one sealed conveyance to another. Something similar already takes place at Nong Khai. It would also be necessary to obtain a site within the port, contract for its operations and make arrangements with the shipping lines for delivering the containers to the site. The road transport would be arranged in manner similar to that for containers, but the transporters would provide the domestic containers or closed vans.

289. The efficient transport of small shipments in containers requires consolidation of shipments according to their destination and type of container required. This service is provided by shipping lines at container freight stations located in the port or by 3PLs at warehouses located near the port or

the source of the exports. The latter not only provide consolidation services but also arrange for deconsolidation and delivery at the other end of the journey. They may also provide transport. While the consolidation of cargo reduces the unit cost of transport (per volume or weight), it also increases the transit time and predictability of delivery times. In order to be effective, there must be sufficient cargo to fill multiple containers each week for delivery to an overseas distribution hub. It is unclear if this applies to exports from Lao PDR since private freight forwarders are currently prohibited from offering consolidation services.

290. LCL cargo from Lao PDR is currently consolidated at the Thai ports. Domestic forwarders should be allowed to participate in this activity by consolidating LTL cargo and transporting it in bond to the Thai ports for consolidation. At the same time, the governments of Thailand and Lao PDR should collaborate to ensure competition in the provision of consolidation services at the ports. An earlier collaboration greatly increased competition among companies providing road transport to/from the ports and contestability through cross-border movement of trucks.

291. The logistics services available for imports are limited to transport, clearing and storage. Imports to Vientiane that are not cleared at the border are processed in Thanaleng, at a facility which is operated by a state enterprise. Over the last decade, the efficiency of the facility has improved despite the lack of competition from the private sector. However, the scope and quality of services are limited. In order to introduce a broader range of logistics services, e.g. inventory management, distribution and value added services, it is necessary to introduce private sector 3PLs. This will require an end to the exclusive arrangement and the development of a facility that can accommodate multiple service providers. It also requires an end to restrictions on third party bonded warehousing. The government can continue to regulate this activity through bonding requirements and facility standards, as long as these do not prevent participation by qualified 3PLs.

292. The government should collaborate with the private sector in performing studies concerning demand for common services. Although there

has been considerable discussion regarding the requirement for various services related to storage and consolidation, there has been no market study to determine the size and characteristics of demand. Similarly there have been various proposals for addressing the empty backhaul problem but no analysis of the different causes of empty container movements and the volumes involved and how the proportion of empty movements can be reduced. A third area in which there has been a lack of demand analysis is the development of various type of zones. While much of the demand would be generated, there should also be diverted demand that can be evaluated to determine the size of the potential demand and the advantages that the zone would have to offer to capture this demand. Some of these studies could be undertaken by the government but most require a joint effort since it is the private sector that would be the eventual users.

293. In the medium term, improvements in logistics would complement the export of higher value goods. This requires the ability to handle smaller shipments, to provide services with different combinations of availability, cost, service time and reliability, and to serve a wider range of markets and distribution channels. These would be supported by improvements in ICT services and better training of personnel. These improvements will be introduced by the private sector both within Lao PDR and through collaboration with its neighbors. They would also complement restructuring of the supply chains for the different exports as discussed below.

294. The other change in the medium term will be the improvement in logistics services would be the introduction of unit train container services within the region. So far the only container unit train service provided by SRT is the shuttle operation between Laem Chabang port and the ICD at Lat Krabang. The possibility of a unit train service for Lao PDR operating out of the railhead at Nong Khai has been discussed but in its current state, the SRT lacks both the physical and managerial assets required to sustain such an operation. The extension of this service to Vientiane has also been discussed but without a detailed analysis of the difficulties in implementa-

tion and the financial viability. Among the basic questions that have yet to be addressed are

- What is the expected volume of container traffic (loaded and empty) and the modal share for rail?
- Would the train deliver boxes to the port or to Lat Krabang?
- What would be the quality of service in terms of service frequency and transit times and how would this affect modal share?
- Who would invest in the container handling equipment and rolling stock?
- Who would manage the train service and the intermodal terminal?

295. Once a unit train service is operating, then an ICD can be established in Nong Khai or Thanaleng. Initially this would be a simple intermodal operation. However, as the volume of traffic increases it would be possible to introduce the legislation to allow the ICD to operate as a dry port. It would also be possible to expand the site and create a logistics hub that provides storage, consolidation, and value added services. It is difficult to plan this development given the uncertainties associated with SRT's financial and operational problems. However, it is unlikely that the terminal would be located in Thanaleng given the traffic volumes and the relatively small benefit in terms of cost for the road transport to the origin/destination in Lao PDR.

296. The potential for establishing unit train operations will be much greater if the planned rail link from Kunming to Bangkok via Vientiane is established. However, the majority of the traffic would be transiting Lao PDR and the unit trains would not stop in Vientiane. Nevertheless, the container traffic generated in Vientiane should be sufficient to justify a daily movement south to Laem Chabang and possibly one north to Kunming. Nevertheless, there are serious doubts as to the financial viability of such a rail route.

6.4 Supply chains

297. In the short term, the private sector could modify their supply chains, both inbound and outbound, to take advantage of improvements in the quality of the logistics services. These changes are intended to achieve the short-term goal of increas-

ing the volume of exports with some improvement in quality. The modifications would improve the end-to-end performance of these chains in terms of time, cost and reliability thereby increasing the value of the product to the buyers. They would reduce not only the order cycle but also the cash-to-cash cycle. Also they would also improve quality control and traceability to meet the requirements of the buyers.

298. Government would contribute to these modifications through improvements in trade facilitation and testing and certification. The former is important for efficient clearance of imported inputs for higher value products and for exports of smaller shipments with differentiated products. The latter should be integrated into the supply as part of the quality control activities.

299. In the medium term, the private sector would restructure their supply chains to increase the unit value of the exports and the proportion of value-addition performed in Lao PDR. The inbound supply chains would be restructured to increase local sourcing of inputs and the quality of these inputs. The outbound supply chains would be diversified to provide greater variety in performance, utilize more distribution channels, handle a wider range of products and shipment sizes and offer special handling capabilities.

300. Government would support these efforts through allocation of land for production including designated production clusters and development of complementary transport infrastructure and national IT trade portals. It would also participate with the private sector in the marketing studies and provision of common technical services to support the diversification to new markets and distribution channels.

301. In the short term, the growth in coffee exports, will be primarily through improvements in the structure of inbound supply chains. Production will increase as additional land is planted, coffee plants are renewed, and cultivation practices improve. There will also be an increase in value as the share of higher value Arabica and wet processing increases. Larger enterprises, both plantations and farmers groups, will be established and collection procedures will be simplified. The government will contribute through its traditional role in land

allocation and agricultural extension services but can also support efforts to improve production through outgrower schemes and other forms of contract farming.

302. In the medium term, growth in coffee exports will result primarily from improvements in the structure of outbound supply chains. There will be improvements in processing and an increase in the exports to higher value markets and through higher value distribution channels. This will require a shift from large shipments to international traders to small-medium sized shipments by individual enterprises to specialized roasters and retailers. Government support in the areas of quality control and certification will be important for establishing a national brand to support the brands developed by individual exporters.

303. The growth in garment exports will be accomplished through foreign investment in new production along with an increasing proportion of domestic production. The expansion would include efforts to produce higher value goods, but in the short term it is expected that the principal focus would be on expanding volume. Since foreign owners manage most of the logistics, the government's primary efforts would focus on creating a favorable business enabling environment. Efforts to reduce the time and cost for the inbound and outbound movements would continue through improvements in trade facilitation and reorganization of land transport through transloading, consolidation, and collaboration with the shipping lines in reassigning inbound containers to export shipments.

304. In the medium term, the role of domestic producers could be enhanced through better access to finance and adjustment in outbound supply chains to focus on specialized markets. At the same time, the role of local suppliers, both domestic and foreign-owned, would be strengthened through development of clusters with bonded facilitations for production, finishing and distribu-

tion of textiles and other inputs to production of garments. The government would contribute to this effort through development of duty free zones to serve existing demand and by allowing the establishment of third party bonded warehouses.

305. The growth in exports of fresh fruits and vegetables is expected to encompass increases in both volume and unit value. For produce shipped to neighboring countries, the restructuring of inbound supply chains will include establishment of large farms with outgrower schemes and the formation of grower's associations to provide sufficient quantity and consistency of produce for distribution to retail chains in neighboring countries. This will also require an increase in the capacity of temperature-controlled transport in shipments as well as expedited clearance procedures at the borders. For produce shipped overseas, the restructuring of the supply chains will include foreign investment in large farms complemented by outgrower schemes together with faster and more reliable distribution channels using both air and sea transport. Government support will be critical for supporting the new arrangements between farms and processors on the inbound supply chains and for integrating certification and clearance procedures into the outbound supply chains to support fast and reliable shipments.

306. The growth in exports of processed fruits and vegetables will parallel those of exports of fresh produce. There will be less demand for consistency of produce and for specialized transport but more demand for regular supply throughout the year. The development of the inbound supply chains will focus on obtaining sufficient volume of production to fill regular orders from retailers. Government support would extend to enforcement of health and safety regulations for the processing of fruits and vegetables that meets international standards. Government would also support the development of production clusters through provision of reliable utilities and uncongested access to supporting infrastructure.

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