Trade Facilitation

Cost of Non-Cooperation to Consumers in the ASEAN Economic Community

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Abbreviations

ACCSQ	Consultative Committee on Standards and Quality
AEC	ASEAN Economic Community
AEO	Authorized economic operator
AHN	Asian Highway Network
ASEAN	Association of South East Nations
ASW	ASEAN Single Window
ATIGA	ASEAN Trade in Goods Agreement
CCA	Coordinating Committee on the Implementation of ATIGA
CLMV	Refers to Cambodia, Lao PDR, Myanmar, and Viet Nam
ERIA	Economic Research Institute for ASEAN and East Asia
GDP	Gross domestic product
GTAP	Global Trade Analysis Project
HS	Harmonized system
MTR	Mid-term Review
NSW	National Single Window
NTB	Non-tariff barrier
NTM	Non-tariff measure
OECD	Organization for Economic Cooperation and Development
PRC	People Republic of China
ROO	Rules of Origin
TB	Tariff barrier
TBT	Technical trade barrier

Foreword

South East Asia is one of the fastest growing regions in the world. To sustain economic growth, ASEAN Member States (AMS) have made enhancing regional cooperation and economic integration key priorities. The 10 members of ASEAN account for 600 million people with a combined GDP of USD2.1 trillion. In South East Asia, urban population rose from 38% of the total population in 2000 to 44% in 2010, and is forecasted to rise to 50% by 2020.[1] This growth in urban population and the rising middle class will increase spending power of ASEAN countries and strengthen demand in their domestic markets, helping to unlock huge growth potential.

As ASEAN moves towards establishing the ASEAN Economic Community (AEC) by 2015, The Asia Foundation is committed to understanding the issues and challenges still facing AMS in establishing a single market. This includes risk that growth in inter-ASEAN trade could stall unless it can mobilize the finance and expertise needed to tackle serious infrastructure problems.[2]

This study first explores the commitments and agreements among ASEAN parties towards improving regional trade. Secondly, it presents the obstacles that are likely to slow down trade based on previous literature, stakeholder interviews, and quantitative economic analysis. Finally, it proposes policy recommendations for removing such obstacles. Emphasis is placed on the trade structure of ASEAN 6 countries when analyzing obstacles to intraregional trade and the benefits to consumers and businesses of a fully implemented trade facilitation system.

Fully modern trade facilitation processes should reduce the time and cost of land transportation to 5 days and $448USD respectively for region to region bilateral trade. According to the simulation conducted by the researchers, this will result in GDP growth ranging from 0.09% to 2.66% and regional household income growth of 0.11% and 2.82% across the ASEAN 6 countries.

However, AMS still face significant obstacles to trade facilitation despite attempts to reform custom techniques and procedures. The study also points out the need for enhanced operational and administrative capacity through training and capacity building programs rather than just increasing access to information. Infrastructure is another major problem, with inefficient transit arrangements and underdeveloped trade-related infrastructure found throughout the ASEAN region. It is estimated that Asia needs USD11 trillion to fund critical infrastructure development including upgrading roads and railways to handle more goods.[3]

As a result, the study proposes the idea of forming a committee to better facilitate funding projects between ASEAN neighboring countries. To overcome these and other challenges mentioned in detail in the study findings, such as the need to reduce informal payments, encourage competition and establish industrial clusters, the AMS should adopt and implement prioritized policy recommendations aiming to improve trade facilitation across ASEAN by 2015.

1 Beyond Asia, New Patterns of Trade. Ernst and Young
2 http://www.hsbc.com/news-and-insight/2013/unlocking-asean-potential
3 http://www.hsbc.com/news-and-insight/2013/unlocking-asean-potential

A successful AEC is an AEC that improves the well-being of its population. A functioning AEC needs to provide benefits to the ASEAN communities by reducing the cost of products and/or providing greater choice and quality to consumers. It also requires on-going engagement with the private sector, including small and medium enterprises (SMEs), to ensure that policies are designed and implemented in a way that enhances the movement of goods, services, capital and labor for more inclusive and balanced economic growth.

Véronique Salze-Lozac'h

Senior Director, Economic Development
Chief Economist
The Asia Foundation

Preface

This report was carried against the backdrop of the upcoming ASEAN Economic Community in 2015. It highlights the current state of trade facilitation in the ten ASEAN member states and examines the effects of non-cooperation to consumers in the ASEAN Economic Community.

This report provides a critical assessment of the obstacles to trade including shipping time and costs, transport infrastructure, logistical services, and delivery reliability. Interviews were used to reveal the attitudes and opinions of key players in ASEAN trade and their insights provide a clear picture of what is needed to improve the trading sector in ASEAN.

To understand the economic benefits of a fully integrated ASEAN Economic Community, the standard Global Trade Analysis Project (GTAP) model was used. Based on our analysis, we provide five recommendations on how to improve trade facilitation and reduce the cost to consumers.

Through this report, we hope to provide policy makers, investors, and other stakeholders a clear picture of the current state of trade facilitation and the cost of non-cooperation to consumers.

I would like to express my gratitude to The Asia Foundation for their valuable and unreserved contributions to this project. I also thank the University of the Thai Chamber of Commerce and to my colleagues who put in their time and effort making this project possible.

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Executive Summary

With the support from The Asia Foundation, this project entitled "Trade Facilitation- Cost of Non-Cooperation to Consumers in the ASEAN Economic Community," explores the commitments and agreements among ASEAN parties toward improving regional trade, presents the obstacles that have slowed trade, discusses the benefits of removing such obstacles, and finally recommends policy changes to improve trade facilitation.

Based on existing literature, qualitative analysis, and surveying key stakeholders on their perception of regional trade facilitation, this report estimates there would be a considerable reduction in time and cost to consumers in ASEAN owing to increased intra-ASEAN trade.

The ASEAN member states (AMSs) have laid out steps to improve intra-ASEAN trade in the ASEAN Economic Community Blueprint. The AEC Blueprint aims to improve trade facilitation by simplifying, harmonizing, and standardizing trade and customs, and procedures. Further, it establishes the ASEAN Single Window to enhance export competitiveness and facilitate the integration of ASEAN into a single market for goods, services, and investment.

While the AMSs have made progress on tariff barrier (TB) elimination, there is still only limited progress on eliminating non-tariff barriers (NTBs). This report finds that there is a strong need for customs modernization and integration of techniques and procedures in order to fully capitalize on a single market and production base. Additionally, the AMSs are at various levels of developing and complying with regulatory requirements. To confront the differences, the ASEAN Consultative Committee on Standards and Quality (ACCSQ) has been tasked to explore and implement measures that can hep bring uniformity to intra-ASEAN trade.

To asses intra-ASEAN trade, the report examines past and present trade structures of ASEAN 6 (Thailand, Cambodia, Viet Nam, Laos PDR, Malaysia, and Myanmar). The report shows increased dependency between ASEAN 6 countries with the annual export growth of intra-trade of each member around 16-35%.

A review of the data shows that intra-trade among ASEAN 6 was in raw material, construction equipment, and in machinery. These goods are likely being used to build infrastructure and establish the manufacturing sector. The data also shows that ASEAN 6 are building integrated supply chains. However, based on a review of the trade structure, it appears that efforts to organize the supply chain or exploit the comparative advantage of each country remains minimal.

Under this context, the report examines obstacles that have slowed intra-ASEAN trade by reviewing the literature on trade facilitation and NTBs published between 2000 and 2012 as well as conducting interviews from public and private stakeholders to asses the current state of trade, NTBs, and the associated time and cost.

The interview sessions reveal common problems with clearance, documentation, and processing procedures. Informal payments and low skill levels of official also proved to hinder trade. The report also reviews the poor quality of transport infrastructure, the lack of competition in logistical services, the limited ability to track and trace consignments, and unreliable delivery schedules.

If ASEAN 6 were to over come these obstacles and implement an efficient trade facilitation system, the consumers would certainly benefit. To simulate the economic benefit of trade facilitation and implementation, the standard Global Trade Analysis Project (GTAP) mode was used.

A two scenario analysis was developed to simulate the benefits from improvements of trade facilitation. The first scenario was conducted under the assumption that trade facilitation is fully modernized and transportation cost and time are reduced to the most efficient system of Singapore. The second scenario assumes that transportation cost and time is partially improved to a moderate level on par with Thailand.

The results show that under both Scenarios, time and cost would be reduced considerably. This translates to direct benefits to the consumers as GDP and household income for all countries would be positively affected with Lao PDR benefiting the most. The potential benefits of increased trade facilitation can not be understated. In order to capitalize on these opportunities, the barriers to trade outlined in this report need to be overcome.

Table 4.1: Conditions of time and cost of land transportation in the scenario analysis

Scenarios	Time	Cost
Scenario 1 (Benchmark with Singapore : Best performance)	Reduction to 5 days	Reduction to 448 US$
Scenario 2 (Benchmark with Thailand)	Reduction to 14 days	Reduction to 668 US$

To overcome these obstacles, the report lists five policy recommendations for improving trade facilitation in ASEAN.

1. Create official training and capacity building programs for officers involved in trade facilitation
2. Establish institutional reform
3. Improve infrastructure
4. Encourage greater competition among logistics providers
5. Encourage the establishment of industrial clusters across regional production zones

ASEAN and Trade Facilitation

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967, with the signing of the ASEAN Declaration, also known as the Bangkok Declaration. The founding members of ASEAN are Indonesia, Malaysia, Philippines, Singapore, and Thailand. Brunei Darussalam later joined ASEAN on 7 January 1984, Viet Nam on 28 July 1995, Lao PDR and Myanmar on 23 July 1997, and Cambodia on 30 April 1999.

According to the Bangkok Declaration, the main objectives of ASEAN are political, social, and economic cooperation. The creation of an ASEAN Economic Community (AEC) is seen as a critical step toward achieving this, and during the 13th ASEAN Summit in November 2007, the ASEAN Economic Community (AEC) Blueprint was signed.

The main objectives of the AEC are to create a single market and production base of 600 million people, a highly competitive economic region, a region of equitable economic development, and a region that is fully integrated with the global economy. The five core elements of AEC are; free movement of goods, services, investment, skilled labor, and freer flow of capital. In order to reach this ultimate goal, the AEC Blueprint was adopted by each ASEAN member state (AMS) to serve as a template that will help guide the AMSs to achieve their 2015 goal.

As ASEAN moves toward establishing the AEC by 2015, steps to improve trade facilitation have been taken to enhance trade among the AMSs (AEC Blueprint 2007). This has included the removal of non-trade barriers to promote the free movement of goods in the region and the development of an integrated regional production network. Though numerous improvement guidelines (such as AEC Blueprint 2007, AEC Handbook for Business 2012) have been published, many joint projects that were expected to improve trade facilitation have failed to yield any successful results.

In this study, we first explore the commitments and agreements among ASEAN parties toward improving regional trade. Secondly, we present the obstacles that are likely to slow down trade based on previous literature, stakeholder interviews, and quantitative economic analysis. Finally, we discuss the benefits of removing such obstacles.

ASEAN's efforts to improve trade facilitation

The AEC Blueprint aims to improve trade facilitation by:

- Simplifying, harmonizing and standardizing trade and customs, processes, procedures and related information flows
- Establishing the ASEAN Single Window to enhance export competitiveness and facilitate the integration of ASEAN into a single market for goods, services, and investments

The main tasks of the AMSs to improve trade facilitation are as follows.

Tariff liberalization

The AMSs have made very good progress on tariff barrier (TB) elimination, though they still maintain tariffs on some products under the Sensitive List, Highly Sensitive List, and General Exception List (ASEAN Secretariat 2012). As of January 2010, Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand have eliminated intra-ASEAN import duties on 99.65 percent of tariff lines. Cambodia, Lao PDR, Myanmar, and Viet Nam have reduced their import duties to 0 to 5

percent on 98.86 percent of their tariff lines.

Elimination of non-tariff measures and non-tariff barriers

Contrary to the progress on eliminating TBs, there is still only limited progress on eliminating non-tariff barriers (NTBs). NTBs remain a big obstacle in the free movement of goods in intra-ASEAN trade. At the end of 2012, the ASEAN Secretariat reported that the Coordinating Committee on the Implementation of the ATIGA (CCA) of the ASEAN Trade in Goods Agreement (ATIGA) is establishing a robust mechanism to identify and eliminate NTBs effects on non-tariff measures (NTMs) with the co-operation of the ASEAN member states. The CCA is already engaging with regional level representation of private sector associations to identify NTBs faced by the industry at implementation points, to find ways to better address these impediments, and has established a NTM database maintained by the ASEAN Secretariat and regular updated by the AMSs to monitor progress on eliminating NTBs (ASEAN Secretariat 2012).

Customs modernization and integration

The modernization and integration of customs techniques and procedures is necessary for the creation of a single market and production base. The strategic plans for customs development for 2011-2015 was recently endorsed at the ASEAN Customs Director General's meeting, which covers a wide range of activities including: customs tariff classification, valuation, origin determination of goods, e-customs, customs clearance, customs transit, private sector engagement, authorized economic operators, knowledge based services, enforcement and mutual assistance, post clearance audit, public security and protection of society, reform and modernization, HR/administrative development, narrowing development gaps to reduce processing costs and time, and customs techniques and procedures (AEC Handbook for Business-ASEAN Secretariat 2012).

ASEAN Single Window (ASW)

The ASEAN Single Window (ASW) is a key component of ASEAN's plan to realize the AEC by 2015 and has huge potential to enhance trade facilitation. When fully operational, the ASW will enable the electronic exchange of cargo clearance documents among AMSs. A National Single Window (NSW) in each AMS will also allow traders to submit trade-related documents to one place and enable related agencies within an AMS to process and deliver decisions through the same point where the submission was made (AEC Handbook for Business 2012). This process presumes relatively "modern" customs, mainly in the sense of having electronic linkages (i.e. e-customs), effective risk management, payments systems, etc., and implementation of an authorized economic operator (AEO).

In 2012, the ASEAN Secretariat concluded that the AMSs are at various levels of developing their NSW, and that where the NSW system is in place, businesses and industries are increasingly making use of the system. In particular, the system is being used for submitting and processing customs declarations and fulfilling regulatory requirements. Hence, extending this system beyond borders to transition to a whole ASW is expected to have high implementation potential in AMSs with recently established NSWs. Currently, a Pilot Project on ASW is being implemented in seven countries, (Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam) participating, using two test documents (AEC Handbook for Business 2012).

Self-Certification System

The self-certification system allows the exporters to declare and self-certify the ASEAN product content in their exported products on pre-agreed export documents. The successful implementation of the ASEAN-wide Self Certification System will provide the business community an added advantage in managing the cost and time of doing business in the region. The system will also allow for building trusts through consultation and greater transparency between the business community and the public sector. According to the AEC

Handbook for Business 2012, the first pilot project of the Self Certification System is being implemented with the participation of four AMSs (in November 2010, Brunei Darussalam, Malaysia, and Singapore commenced with the ASEAN Self-Certification System and Thailand subsequently joined in October 2011). The second pilot project has been developed by three other AMSs, Indonesia, Lao PDR, and the Philippines. On the completion of the pilot project stage, participants of the two pilot projects will merge to have an ASEAN-wide implementation of the Self-Certification System by 2015.

Enhancement of ASEAN Rules of Origin (ROO) requirements

The ASEAN Secretariat reports that the ASEAN Rules of Origin (ROO) are also being continuously revised to respond to changes in global production processes. The revised ROO are reflected in the Products Specific Rules, which provide a choice of rules from: a Regional Value Content based rule of origin, a Change in Tariff Classification based on rule of origin, a specific manufacturing or processing operation, or a combination of any of these to address any complications arising from ROO simplification and the acceptance process (AEC Handbook for Business 2012).

To date, the ROO revisions in ATIGA have introduced other origin criteria to give economic operators more leeway to achieve ASEAN-origin status for regionally traded products (AEC Handbook for Business 2012).

The revised ROO is reflected in the Products Specific Rules (PSR), which provides a choice of rules from a Regional Value Content (RVC) based rule of origin, a Change in Tariff Classification (CTC) based rule of origin, a specific manufacturing or processing operation, or a combination of any of these to address any complications arising from ROO simplification and acceptance process.

Harmonizing standards and conformance procedures

The AMSs are fully aware that differences in standards and technical regulations pose obstacles for the movement of products within ASEAN. Hence, the ASEAN Consultative Committee on Standards and Quality (ACCSQ) has been tasked to explore and implement measures that can help bring uniformity in the standards and conformance areas which can be trade facilitative. For instance, through efforts on mutual recognition, harmonization of standards, and reductions in prohibitive testing costs that still meet the assurance of essential requirements of quality and safety in ASEAN manufactured products (AEC Handbook for Business 2012).

The three core activities include:

- harmonization of standards,
- development of mutual recognition arrangements, and
- conformity assessment procedures among the AMSs, continue to work towards the creation of a regional approach to address technical barriers to trade (TBT)

The purpose of this is to support a single market, production base, and free flow of goods. The timely achievement of this objective will ensure enhancement of trade in the priority sectors for the ASEAN region (ASEAN Secretariat-Handbook 2012). Due to slow development of the standard procedures, the ASEAN Secretariat has been emphasizing the need for greater commitment, cooperation, and coordination among AMSs.

According to the ASEAN Secretariat, they are seeing progress in harmonizing standards and conformance procedures. However, as in any harmonization process, ASEAN is faced with the need to address the differences in the existing procedures, such as divergences in national standards without affecting each AMSs' commitments with external parties.

The AMSs are fully aware that, differences in standards and technical regulations pose obstacles for the movement of products within ASEAN. Hence, they recognize the need for common standards and regulatory regimes. The ASEAN Consultative Committee on Standards and Quality (ACCSQ) has been tasked to explore and implement measures that can help bring uniformity in the standards and conformance

area which can be trade facilitative through efforts on mutual recognition, harmonization of standards, reducing prohibitive testing cost and at the same time meeting the need for the assurance of essential requirements of quality and safety in ASEAN manufactured products.

To ensure timely implementation of the AEC initiatives, ASEAN has established a monitoring mechanism called the ASEAN Economic Community Scorecard (AEC Scorecard). As a compliance tool, the AEC Scorecard reports the status of implementing various AEC measures, identifies implementation gaps and challenges, and tracks progress toward realizing the AEC by 2015. The monitoring of the AEC is based on a number of regional and national level measures aligned with the AEC commitments.

This report provides an assessment of the AEC Scorecard covering the period 1 January 2008 to 31 December 2011. In addition to the AEC Scorecard, in 2012, the ASEAN Economic Ministers requested the Economic Research Institute for ASEAN and East Asia (ERIA) to undertake the Mid-Term Review of the Implementation of the AEC Blueprint (MTR).

Full implementation of the commitments under the AEC, including: free trade of goods; free movement of services, investment, and skilled labor; and freer flow of capital; is also expected to reduce the cost of goods for the benefit of consumers in the region. However, there are many actions that have to be taken in order to establish the AEC.

One of the most important tasks is improving trade facilitation in ASEAN. The next section focuses on existing NTBs in intra-ASEAN trade by summarizing key issues from literature relating to obstacles in the free movement of goods. This will be complemented by practical findings from surveys, national conference focus groups, and a quantitative assessment on the cost of non-cooperation on the AEC commitments. The report concludes with a series of policy recommendations.

“Now is the time to improve our country and all the associate parties should have general awareness.”

General manager, logistics company (Myanmar)

“If trade facilitation has improved, shipping cost and time can be lowered by 30%. I believe the trade sector will grow a lot, may be 50% or more.”

Marketing manager, Heavy Machinery Distribution (Malaysia)

Trade Structure

In this section, the present and past trade structures of ASEAN 6 (Thailand, Cambodia, Viet Nam, Laos PDR, Malaysia, and Myanmar) are reviewed. To review ASEAN 6's dependency on intra-trade and others, the proportion of intra-trade among ASEAN 6, including trade to the People's Republic of China (PRC) and the rest of the world are examined. Based on this trade pattern, improvement resulting from those efforts is assessed.

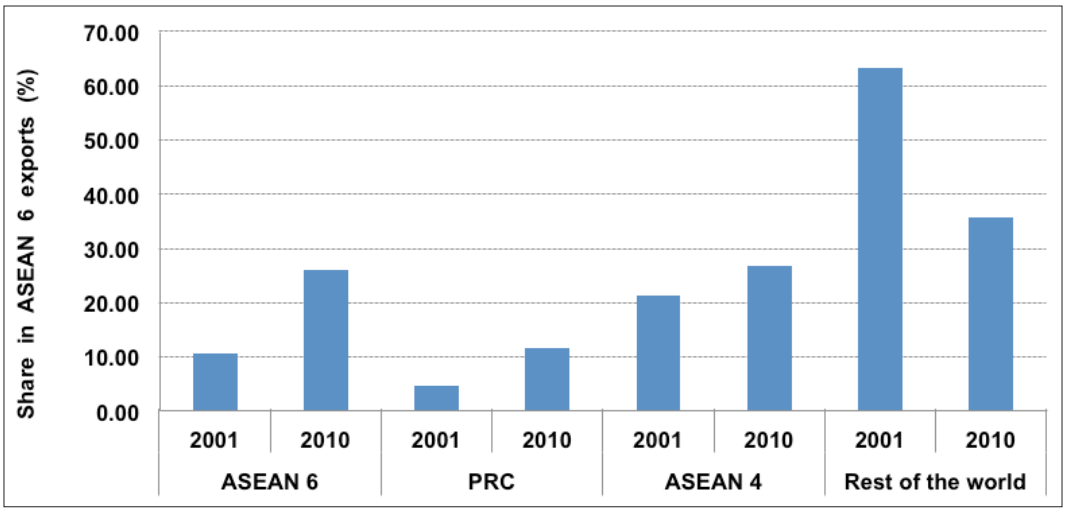
Figure 2.1 shows that the proportion of intra-trade among ASEAN 6 and with the PRC increased significantly between 2001 and 2010 compared to the proportion of ASEAN 6 trading with the rest of ASEAN (i.e. ASEAN 4 – Singapore, Brunei, Indonesia, and Philippines) and the rest of the world. This trend is further emphasized by the higher annual growth rate of intra-ASEAN 6 trade and trade with PRC than with the rest of ASEAN and the rest of the world.

As indicated in Figure 2.2, the annual growth rate of intra-ASEAN 6 trade is around 18% and growth of trade with PRC is more than 20%, whereas the growth of trade to the rest of ASEAN and the world is around 10%.

For all ASEAN 6 countries, the share of intra-trade seems to play a more important role in 2010 (Table 2.1) than in 2001 (Table 2.2). The highest intra-trade dependent countries are Lao PDR and Myanmar. While the share of intra-trade of Myanmar and ASEAN 6 did not significantly increase (from 31.95 to 39.91%), the share of Lao PDR export to ASEAN 6 (from 48.01 to 71.96%) has expanded impressively (Tables 2.1 and 2.2). For trade with the PRC, the proportion of Lao PDR dependence on PRC yields the highest amongst peers in 2010 (Table 2.1), and also demonstrates considerable expansion from 48.01% in 2001 to 71.96% in 2010.

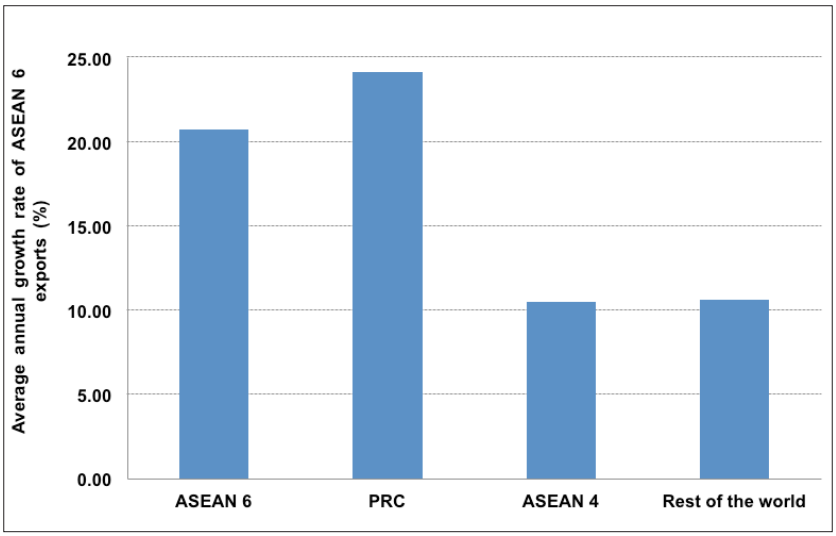
Overall, ASEAN 6 seems dependent on each other more with the annual export growth of intra-trade of each member of ASEAN around 16-35% (Table 2.3). Lao PDR shows the highest

Figure 2.1: Direction of ASEAN 6 Exports



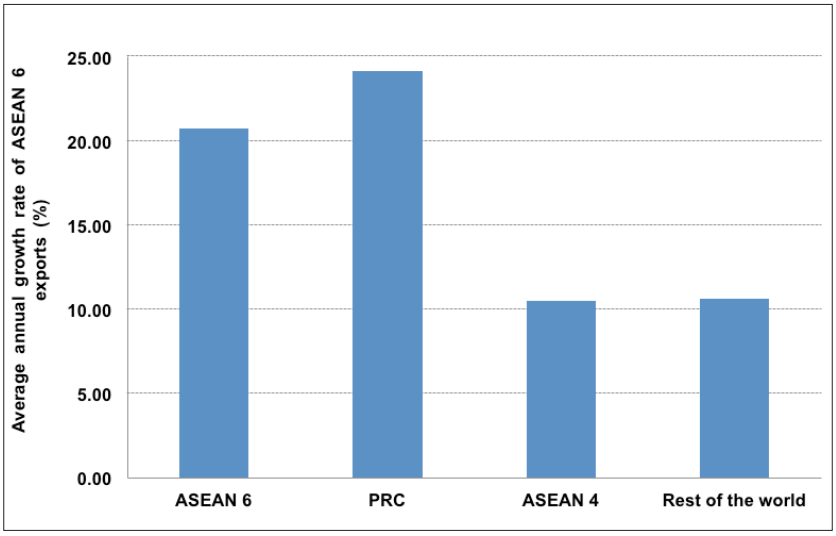
Source: Author estimation from data obtained from International Trade Center

Figure 2.2: Growth of ASEAN 6 Exports, by Destination, 2001-2010



Source: Author estimation from data obtained from International Trade Center

Figure 2.2: Growth of ASEAN 6 Exports, by Destination, 2001-2010



Source: Author estimation from data obtained from International Trade Center

annual export growth to all ASEAN as well as PRC (Table 2.3). Table 2.4 shows Myanmar and Laos PDR remain among the top source and destination of intra-trade in both 2001 and 2010 (Table 2.4).

Using the Harmonized System (HS) 2 digits, the high value intra-trade goods (trade value above US$100 million) for each country are HS 39 (Plastics and articles thereof), 40 (Rubber and articles thereof), 44 (Wood and articles of wood, wood charcoal), 55 (Electrical, electronic equipment), 72 (Iron and steel), 73 (Articles of iron or steel), 84 (Machinery, nuclear reactors, boilers, etc.), 85 (Electrical, electronic equipment), 87 (Vehicles other than railway, tramway), 89 (Ships, boats and other floating structures), and 90 (Optical, photo, technical, medical apparatus).

A review of the trade data (Appendix 1) shows that intra-trade among ASEAN 6 were in raw materials, construction equipment, and in machinery. These goods are likely to be used for building infrastructure and establishing the manufacturing sector. The important traded products to ASEAN 6 for Cambodia, are textiles, agribusiness, and automobiles and parts;

Table 2.1: Share of Destinations in each ASEAN 6 Exports (%), 2010

Country	ASEAN 6	PRC	ASEAN 4	Rest of the world
Cambodia	4.77 ▲	1.16 ▲	7.81 ▲	86.25 ▼
Thailand	12.98 ▲	10.99 ▲	10.94 ▼	65.08 ▼
Myanmar	39.91 ▲	12.67 ▲	1.68 ▼	45.74 ▼
Malaysia	7.42 ▲	12.60 ▲	17.98 ▼	61.99 ▼
Lao PDR	61.96 ▲	35.67 ▲	0.20 ▲	2.16 ▼
Viet Nam	13.07 ▲	10.36 ▲	7.06 ▼	69.51 ▼
PRC	4.48 ▲	-	4.20 ▲	91.32 ▼

Source: Author's estimation from data obtained from International Trade Center

Table 2.2: Share of Destinations in each ASEAN 6 Exports (%), 2001

Country	ASEAN 6	PRC	ASEAN 4	Rest of the world
Cambodia	2.67	1.12	2.2	94.02
Thailand	7.32	4.41	12.02	76.25
Myanmar	31.95	4.83	4.95	58.27
Malaysia	4.65	4.34	20.50	70.51
Lao PDR	48.01	2.27	0.19	49.53
Viet Nam	5.83	9.43	11.16	73.58
PRC	3.05	-	3.86	93.09

Source: Author's estimation from data obtained from International Trade Center

Table 2.3: Average annual growth of Exports of Each ASEAN 6 by Destination (%), 2001 – 2010

Country	ASEAN 6	PRC	ASEAN 4	Rest of the world
Cambodia	28.49	39.92	82.41	15.15
Thailand	29.04	26.06	127.6	-1.19
Myanmar	16.00	23.77	8.78	8.85
Malaysia	16.66	26.98	1.94	2.69
Lao PDR	21.75	69.04	13.03	11.57
Viet Nam	35.15	21.9	14.89	19.35
PRC	28.22	-	23.82	22.7

Source: Author's estimation from data obtained from International Trade Center

Table 2.4
Direction of intra – ASEAN 6 Trade, 2001 – 2010

	Source of intra - ASEAN 6 country's exports (%)		Destination of intra- ASEAN 6 country's imports (%)	
Country	(1)	(2)	(3)	(4)
	2001	2010	2001	2010
Cambodia	0.21	0.21	1.72	0.98 ▼
Thailand	0.83	0.83	2.12	1.72 ▼
Myanmar	21.63	11.69 ▼	14.83	9.58 ▼
Malaysia	4.69	2.41 ▼	2.47	1.78 ▼
Lao PDR	25.12	20.09 ▼	19.13	11.58 ▼
Viet Nam	4.63	7.74 ▲	6.00	7.07 ▲
PRC	42.88	57.02 ▲	53.72	67.30 ▲
Total	100.00	100.00	100.00	100.00

Source: Author's estimation from data obtained from International Trade Center

Thailand's trade products are automobile and parts, electronics and parts, and agribusiness; Myanmar's traded products are petroleum and products, and agribusiness; Malaysia's trade products are automobile and parts, electronics and parts, and agribusiness (palm oil); Lao PDR trades copper and other minerals, agribusiness, and wood and products; and Vietnam trades electronics, automobile, and agribusiness. The description of HS code is shown in Appendix 2 and the key products traded for each country are shown in Appendix 3.

The data also shows that ASEAN 6 are building integrated supply chains, which can be seen by the trade in electronics, agricultural business, textiles, and the automobile industry.

However, based on the review of the trade structure, it appears that efforts to organize the supply chain or cluster industry that exploit the comparative advantage of each country remain minimal. Most cross border trade is in raw materials and some industrial clusters have developed in more integrated relations in trade around electronics, automobiles, and textiles. Hence, to encourage trade among ASEAN 6, policy makers should not only improve trade facilitation but also encourage investment among each AMS so that intra-trade is automatically enhanced.

"Time delays and complications of the administrative process are faced generally as a trade related problem."

Officer from E-commerce & Information Technology Agency (Vietnam)

Obstacles to Trade Facilitation

This section is based on literature regarding trade facilitation and NTBs published between 2000 and 2012, and interviews conducted with business and government representatives from mainland ASEAN countries: Cambodia, Laos PDR, Myanmar, Viet Nam, Thailand, and Malaysia. For the current obstacles, interviewees were asked to state the barriers to facilitate trade, NTBs, and the associated time and cost.

Time and costs associated with the current trade facilitation system

Data regarding the time and costs incurred during exporting and importing in this study has been obtained from interviews with 30 stakeholders from both public and private sectors, including individual freight forwarders and transport companies. Along with time and cost estimates, the interviewees were asked to explain problems they encountered in shipping goods within the ASEAN 6.

The purpose of graphically representing this data is to provide policy makers with an indication of the relative performance of the current trade facilitation system. The analysis should be interpreted in light of individual estimations and should not be viewed as exact quantitative indicators. The pre-shipment process time and cost (includes the document preparation process) is viewed as the intercept of the graph; the higher the intercept, the longer the time and the higher the cost. The border clearance time and cost is viewed as the vertical shift in the middle of the graph. The final clearance time and cost (include inspection and documentation processes) are the vertical shift at the end of the graph.

The graphs are compared across countries, using the same vertical and horizontal scale. The slope of the graph reflects the cost and time spent per unit distance and time. A steeper slope reflects a higher unit of time and cost spent during the trucking process. The trade obstacles, that will be discussed in detail in the next section, resulting in long transportation time and high costs are indicated in Figure 3.1 and Figure 3.2.

The clearance process in Myanmar seems abnormally high compared to in other countries. Interviewees stated that informal payments are high, and that without the payment the clearance process takes more than ten days. Steep graphs indicate a high cost and time per unit, and show that the costs of transporting goods to Myanmar and Cambodia are among the highest per unit cost. The cross-border cost for each of these countries is also among the highest. As indicated in Table 3.1, the cost of shipping to the two countries is four to five times higher than the lowest per unit cost of ASEAN 6. The transportation time is likewise three to four times higher than the lowest per distance.

The interview sessions revealed common problems around informal payments and low motivation and skill levels of government officers in handling the border process. The problems of duplicate documents and processes were emphasized and are known to prohibit fast trade facilitation. However, ASEAN 6 parties are still hesitating to adopt a single system and expedite the process. Particularly at an operational level, it seems that those involved fail to adopt and respond appropriately to measures aimed at expediting trade facilitation. Informal payments are found in every process in every country of ASEAN 6. This shows that officers, who tend to have low salaries, lack incentives to promote the benefits of enhanced trade facilitation and the system and

infrastructure do not receive sufficient investment.

Figure 3.1 Transportation cost among ASEAN 6

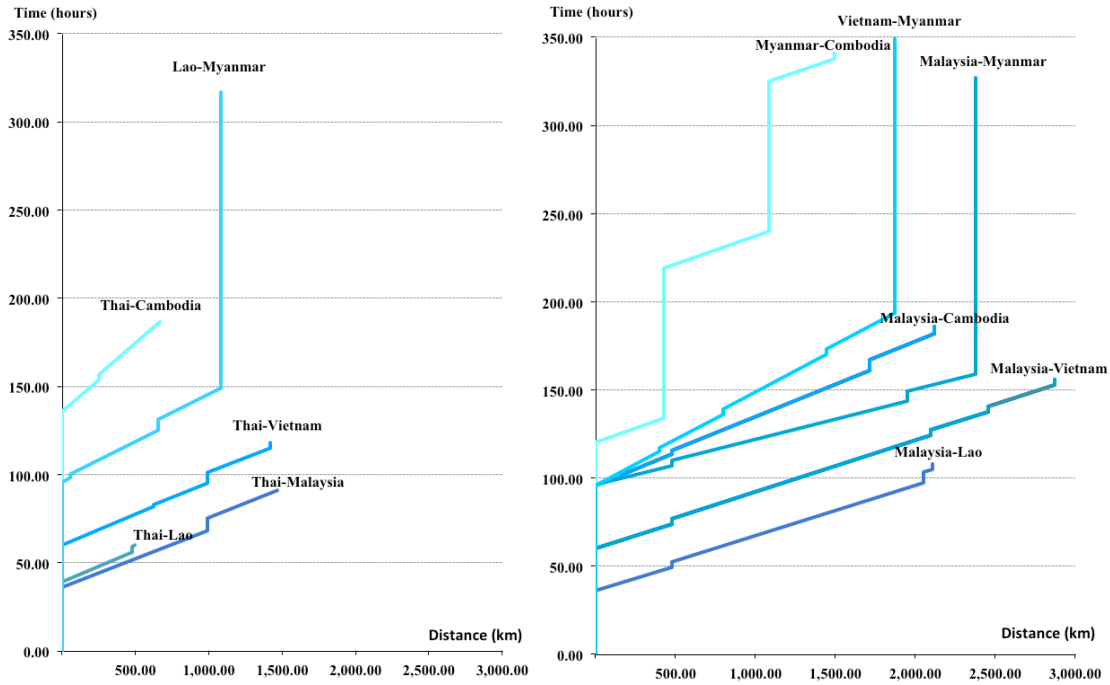


Figure 3.2 Transportation time among ASEAN 6

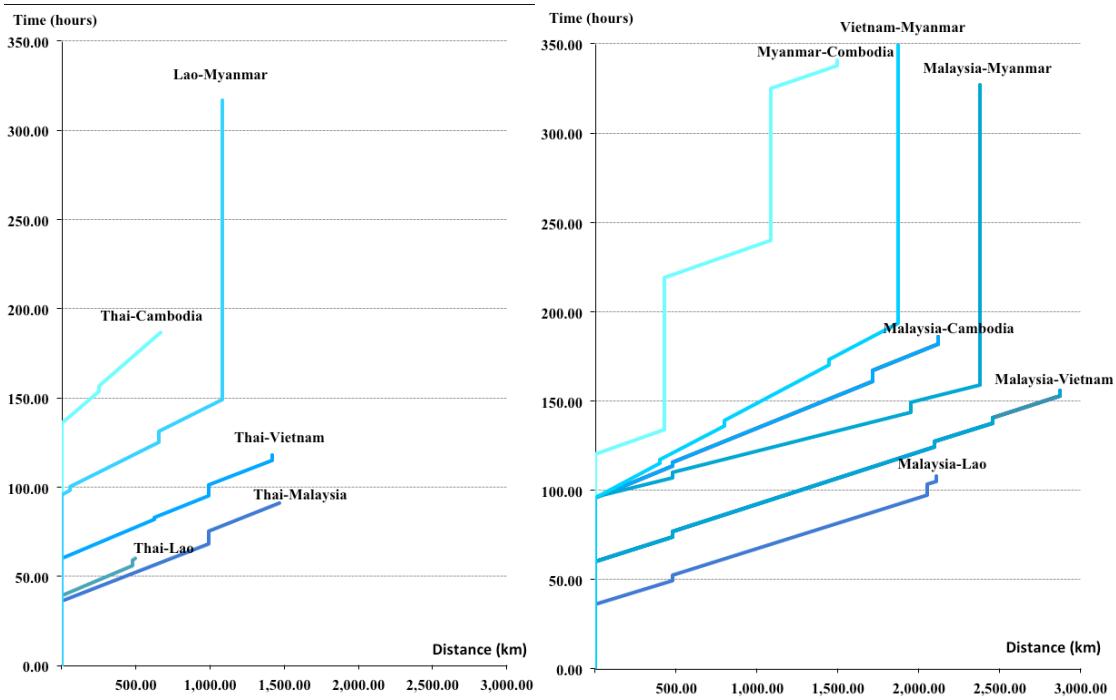


Table 3.1 Comparison of the performance of each trade partner

Item	Thai - Malaysia	Thai- Vietnam	Thai- Laos	Thai - Cambodia	Malaysia - Vietnam	Malaysia - Laos	Malaysia - Myanmar	Malaysia - Cambodia	Vietnam - Myanmar	Laos - Myanmar	Myanmar - Cambodia
Total distance (km)	1,467	1,421	496	668	2,874	2,579	2,378	2,118	1,873	1,083	1,494
Total time (Hours)*	55.00	58.00	24.00	55.00	95.00	72.00	231	91.00	266	221	222
Total logistics cost ($)*	1,570	3,222	1,670	3,512	4,720	3,070	5,120	5,070	7,321	5,620	7,470
Average time (min per km)*	2.25	2.45	2.90	4.94	1.98	1.68	5.83	2.58	8.52	12.24	8.92
Average speed (km per h)*	26.67	24.50	20.67	12.15	30.25	35.82	10.29	23.27	7.04	4.90	6.73
Average cost ($ per km)*	1.07	2.27	3.37	5.26	1.64	1.19	2.15	2.39	3.91	5.19	5.00
Transport cost per ton-km*	0.02	0.05	0.06	0.05	0.04	0.04	0.02	0.05	0.02	0.02	0.03
Logistics cost per ton-km*	0.05	0.11	0.17	0.26	0.08	0.06	0.11	0.12	0.20	0.26	0.25

Obstacles to trade facilitation

The major obstacles to trade facilitation, or NTBs, that contribute to the high cost and time associated with trade in each ASEAN country are examined in the following section.
They include:

- Inefficiency of the custom clearance process
- Poor quality of transport infrastructure
- Difficulty arranging competitively priced shipment
- Lack of competition in logistical services
- Limited ability to track and trace the consignments
- Reasonably reliable delivery schedules

Inefficiency of the custom clearance process

Despite the attempt to reform the custom techniques and procedures, a lack of harmonization and mutual acceptance of documentation, procedures, and standards between different agencies and organizations still appear to be prevalent. Clearance processes are administratively complex, heavily dependent on inefficient and resource intensive physical inspections characterized by face-to-face interaction between traders and government officials (IDA, 2008; Hammar, 2009). For exporters, customs regulations and tax administration are the most difficult constraint. Exporters also need to deal with overlapping jobs and duplicated activities among agencies while clearing their goods, which creates much confusion (Kakada and Hach, 2005). In addition to these inefficient processes, traders have to bear with both formal and informal payments.

Due to the lack of a comprehensive and fully functional customs IT system, processes are not transparent and unpredictable. Customs officers' performance also suffers due to under staffing and a lack of equipment and updated documentation (Building export competitiveness in Laos, 2006). More bothersome still is that sometimes heads of department or other officials who are authorized to sign documents are often unavailable, causing significant delays (Wongpit and Soukavong, 2011). There is also internal resistance to reforms due to a poor understanding of new procedures between customs officers and brokers/traders, and a

lack of IT knowledge and expertise among customs officers and brokers (Nhem, n.d). Furthermore, poorly equipped port facilities can also be a barrier to trade, as they often lack large palette scanners which means that cargo has to be checked manually (Sovicheat/IPD/MoC, 2005).

According to the interviews, the remaining problems are the lack of harmonization of customs tariffs and regulations; the custom officers' arbitrary estimations of the value of goods based on their own experience; delays and inefficiencies in the application of customs, immigration or quarantine processes at border checkpoints; lack of adequate performance standards for application of border crossing formalities and procedures; unregulated officer shift rotations; and the use of a paper-based system at many government offices. Beside these, overlapping steps with officials, however can delegate minor decisions to subordinate officers,needing to wait for their superior's approval, who is often out of the office during office hours. Some interviewees stated that there has been slight improvement in the custom clearance process; however most stated that it is still very slow.

State-owned enterprises tend to receive expedited services without making informal payments, while inconsistent processes and informal payments are often experienced by private companies. Interviewees often expressed frustration with the difference in operating times at neighboring countries' borders; for instance, the Thai borders are mostly open twenty four hours a day and seven day a week, but Laos PDR and Cambodian borders open only during business hours or limited times (e.g. 2:00-4:00p.m.) and close during holidays. However, Singaporean and Malaysian borders are internationalized. The differences in the laws and regulations in ASEAN countries borders are often not compatible.

Poor quality of transport infrastructure

Inefficient transit arrangements and underdeveloped trade-related infrastructure can be found throughout the ASEAN region (Stone and Strutt, 2009). In terms of road infrastructure, insufficient capacity, limited maintenance, lack of road surface monitoring, weak enforcement of driving and vehicle regulations, and low prioritized traffic safety are all areas which need to be improved (Stone, 2002). Morever, lack of information and low awareness of trade's requirements are also a problem. Public awareness activities regarding trade, transport laws, and regulations have so far been hardly disseminated (Paks, 2005).

The Asian Highway Network (AHN) aims to have 23 designated routes with total of 38,400 kilometers, however it still has many missing links, mostly in Myanmar. Roads below Class III standards under the AHN stretch over 5,300 kilometers, encompassing six member states including Indonesia, Laos PDR, Malaysia, Myanmar, Philippines, and Vietnam (Secretariat, 2010).

Map of the Asian Highway Network in the GMS Region

There are also limited heavy vehicle road networks in many AMSs, with less than 15 percent of roads paved in Cambodia, Laos, and Myanmar (Brooks and Stone, 2010). The physical standard of road design and construction needs to be improved to accommodate higher productivity freight vehicles carrying 40ft

containers. This would enable economies of scale to be achieved and help facilitate inter-modal cargo transfer between the container ship, railway, and road transport (Stone, 2002).

In CLMV countries and Thailand, all inland waterways network are underdeveloped with poor river ports and facilities (Secretariat, 2010). Some airports in the ASEAN region still provide limited facilities, particularly runways and warehouses (Secretariat, 2010). They also lack modern equipment like airfreight pallet racks, cold storage, or high capacity X-ray machines, which puts the quality of high value export commodities at risk (Stone, 2002).

Though infrastructure has been improving, the rate of improvement is not fast enough to meet the requirements of trade according to the interviews.

In Lao PDR, interviewees stated that the width of roads and poor domestic air and railway systems were critical constraints to trade. Slow improvements in transport systems often causes from unskilled or untrained staff. Transited goods are doubled checked by Thai officials at checkpoints in Thailand because of poor cooperation and trust between different countries' officials, which causes additional time delays. Hence, building the capacity of human resources is urgently needed in the public sector.

In Myanmar, insufficient infrastructure was often mentioned by interviewees. Traders transporting heavy goods often face difficulty finding appropriate trucks and equipment to handle the heavy loads. Similar to other emerging ASEAN countries, poor waterways, ports, railways, and domestic airlines often slow trade. Hence, basic transport infrastructure is needed, including larger empty container yards, improved communications system and data transfer, as well as increasing cooperation in all ministries. Inconsistent traffic regulation among neighboring countries was also found to be a challenge (e.g. truck weight limit).

For Viet Nam, due to the low feedback, we only have a limited assessment. According to interviewees, railway system, trollies, and trucks have insufficient capacity and are unreliable. Also mentioned was the lack of high quality marine and road transport, and scanning devices.

In Thailand, interviewees mentioned insufficient and slow trucks and railway systems as key challenges. Seaports, though upgraded, do not connect to the railway system, and their cargo terminals do not have the capacity to meet demand.

A common problem discussed by interviewees from all of the ASEAN 6 member states was the different traffic systems used throughout ASEAN. For instance, Thailand and Malaysia have left-hand side traffic, while Cambodia, Lao PDR, and Viet Nam have right-hand side traffic. This means that trucks need to be changed at the border to comply with the different traffic systems, or left-hand drive vehicles are used in right-hand traffic systems (and vice versa), causing safety concerns in cross-border transportation. Changing vehicles at the border often delays shipping; for example, can take up to three to four days to transport goods from Bangkok to Phnom Penh.

Difficulty arranging competitively priced shipments

Compared with the OECD average, customs inspection rates and clearance times in the ASEAN region are high. Drivers cannot deliver products to their destination on time because of delays caused by stopping for irregular and many weight check points. Moreover, exporters are required to provide "informal" payments, which create uncertainty and confusion for foreign investors (Wongpit and Soukavong, 2011). Shipping costs in ASEAN are generally acceptable compared with the OECD, with the exception of Malaysia and the Philippines. The Philippines have higher per unit costs of trade and longer expected trading times (Layton, 2008).

According to the interviews, in CLMV countries, finding container storage before clearance is difficult and costly. This increases transportation costs and time, especially during peak season. Traders are typically required to then make higher informal payments in order to expedite the shipment. Truckers often have to reload cargo due to the different traffic systems

in AMSs or because they engage in some irregularities. This results in extra charges, damage, pilferage, and delayed shipments.

Lack of competition in logistics services

The overall level of logistical services among the CLMV (Cambodia, Lao PDR, Myanmar, and Vietnam) countries is relatively limited, with only Lao PDR and Vietnam having sufficient connections to liaise within the whole of the CLMV. This structural weakness impedes the logistical connectivity capability within the CLMV. Attempts to reform the sector has mostly focused on customs services, with little to no effort from other cross-border agencies. Hence, a more holistic approach is needed for cross-border management. (Banomyong and Ishida, 2010).

The trucking industry in ASEAN is highly fragmented and largely informal. There are also relatively few articulated trucks and almost no container chassis (Building export competitiveness in Laos, 2006). Many of the major ports remain unequipped without modern container handling facilities like quayside gantry cranes. Even if such facilities were installed, container handling does not involve performance-oriented operational plans such as storage and bay plans (Stone, 2002).

According to interviewees, raising the capability and capacity of people working in customs and logistics is needed. Much of the work is prone to error, causing time delays and higher costs. Furthermore, the logistics sector lacks efficient competition in many countries because local staff and officials favor local companies.

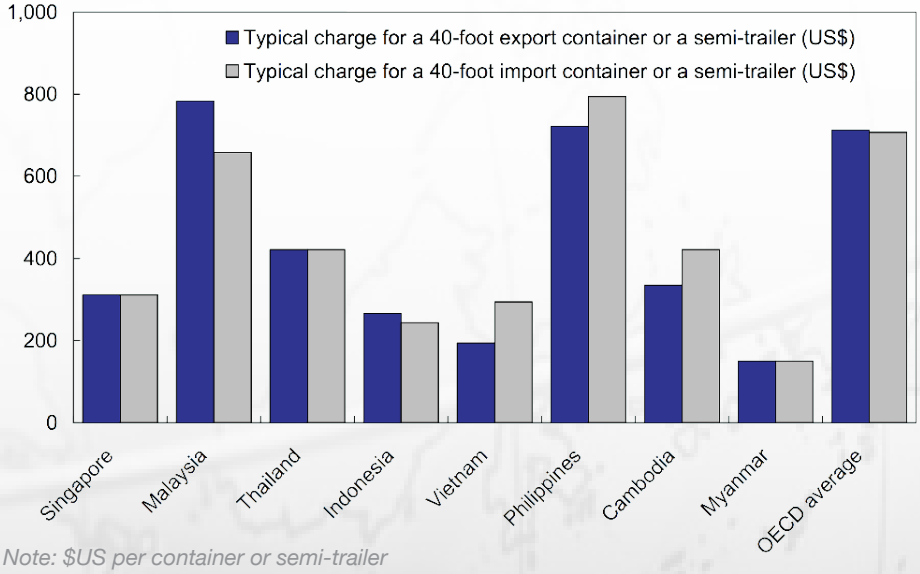
Limited ability to track and trace the consignments

There is a lack of an efficient monitoring system for consignments in ASEAN (Banomyong and Ishida, 2010). In particular, local service providers in Cambodia, Lao PDR, and Myanmar tend to lack the capability to provide track-and-trace, distribution, and cross-docking services. This aligns with feedback from interviews, which found that few countries have the technology to follow up on the tracking and tracing during shipping. The tracing and tracking system depends widely on the firm's policy and their financial capability.

Reasonably reliable delivery schedules

Based on a World Bank survey in 2010, almost all AMSs have above medium levels of punctuality in meeting delivery schedules. Malaysia has the highest score (77.2%) of delivering within scheduled delivery periods among six surveyed ASEAN countries. According to interviews, there are time delays at transit ports because of ships, bridges, or port congestion.

Figure 4: Typical charge for 40-foot container



Note: $US per container or semi-trailer
Source: World Bank (2007)

Scenario Analysis for Trade Facilitation Cooperation

Model and Methodology

If ASEAN 6 were to have a trade facilitation system fully implemented, benefits will be incurred within ASEAN 6. To simulate the economic benefit of trade facilitation implementation, the standard Global Trade Analysis Project (GTAP) model is used with database version 8. The model is one of the spatial computable general equilibrium models that are widely used for economic activities simulation and effects. Note that GTAP 8 database contains the data for reference years 2004 and 2007 as well as 129 regions for all 57 GTAP commodities. However, data for Myanmar was not available. Therefore, to imitate the economic activities of Myanmar, data from combining the economies of Myanmar, Brunei, and East Timor were used and deflated with the share of Myanmar GDP.

The economic sectors used for scenario analysis were aggregated into 9 sectors: Grains, Vegetables and Fruit, Processed Food, Textiles and Clothing, Light Manufacturing, Heavy Manufacturing, Sea Transport, Road Transport, and others (see Appendix 4 for details). Although the GTAP model does not include transportation time and cost, the effect of trade facilitation improvement can be estimated using the method proposed by Iwata et al. (2010) through technology-related coefficients in the GTAP model as follows:

$$QTMFSD^{*}(i, r, s, m) = \{1 + atmfsd(i, r, s, m)\} \; QTMFSD(i, r, s, m)$$

Where QTMFSD* (i, r, s, m) is the quantity of commodity i imported from region r to region s by mode m; QTMFSD (i, r, s, m) is the quantity of commodity i exported from region r to region s by mode m; and atmfsd (i, r, s, m) is the technical change coefficient on transportation of commodity i from region r to region s by mode m. The improvement of trade facilitation is reflected in transportation efficiency or technical coefficient in the GTAP model. The increase in atmfsd by 10 percent causes a 10 percent increase in the quantity of the commodity imported by the corresponding model.

To incorporate the reduction of transportation time, the approach suggested by Iwata et al. (2010) also uses logic that reduction in time increases the traded commodity as follow:

$$atmfsd(i, r, s, m) = TE(i, s)\ \Delta\ DAYS(r, s, m)$$

Where TE (i, s) is tariff equivalent for value of time per day for commodity i imported by region s (% ad-volorem): and Δ DAYS (r, s, m) is change in transportation time of model m for the bilateral trade from region r to region s.

$$\Delta\ DAYS(r, s, m) = \{EXDAY(r) + IMDAY(s)\} \; TIMEREDRATE(r, s, m)$$

Where EXDAY(r) is Day to export in region r; IMDAY(s) is Day to import in regions r; TIMEREDRATE(r, s, m) is time reduction rate regarding transportation from region r to s by mode m. The tariff equivalent for value of time per day is calculated by aggregating the data of Hummels et al. (2007) to match the aggregated 9 commodities and services (see Appendix 4I for details).

To simulate the benefits of ASEAN 6 from improvements of trade facilitation, two scenarios are developed and are summarized in Table 4.1. The first scenario is conducted under the assumption that trade facilitation is fully modernized and the transportation cost and time are reduced to the most efficient system of Singapore (Doing Business database, 2012).

The second scenario assumes that the transportation cost and time is partly improved to a moderate level to be on par with those of Thailand. The percentage of improvement is estimated from the time and cost data available in the Doing Business database (2012). The export time (days) and cost (US$) of Singapore and Thailand are used as benchmarks as indicated in Table 4.1. The percent reduction of export time and cost for each country are estimated from the average of the initial export time and cost given in the Doing Business database (2012) of each trading partner.

Table 4.1: Conditions of time and cost of land transportation in the scenario analysis

Scenarios	Time	Cost
Scenario 1 (Benchmark with Singapore : Best performance)	Reduction to 5 days	Reduction to 448 US$
Scenario 2 (Benchmark with Thailand)	Reduction to 14 days	Reduction to 668 US$

Results of the Simulation

The simulated GDP growth and household income change in ASEAN 6 for the two scenarios are displayed in Table 4.2. It shows that GDP and household income for all countries would be positively affected when the trade facilitation improved in both scenarios and that Lao PDR is likely to benefit with the highest GDP growth and household income.

Table 4.3 shows the change in imports' prices in ASEAN 6 for scenario 1.

It can be interpreted as follows:

- The import prices for all countries tend to decrease for all commodities
- Lao PDR is likely to gain most from the reducing price (-1.17%)
- The highest percent reduction on import price is likely to be found in agricultural products such as vegetables and fruit (-1.05%), followed by processed foods (-0.87%)

The change import prices of scenario 2 are showed in Table 4.4. The pattern of price reduction is quite similar to those of scenario 1 with the slightly lower change.

The percentage of change in export sales of commodities are shown in the tables below. In scenario 1 (Table 4.5), it can be seen that most countries are likely to gain from this trade facilitation improvement, although export sales may not be equally distributed for all trade partners. Thailand and Vietnam tend to import more from other countries and Cambodia appears to be able to enhance their export sales with this simulation.

The effect of moderate trade facilitation improvement in scenario 2 is shown in Table 4.6. Though other countries showed a slight increase in export sales with some trade partners, Malaysia is unlikely to gain much from the export sales with this moderate improvement.

Table 4.7 shows the percent change of export commodity by industry. It shows that Thailand is likely to export more in processed food and light manufacturing; Viet Nam in grain; Malaysia and Lao PDR in light manufacturing; Cambodia in grain; and Myanmar in light manufacturing.

Table 4.2: GDP Growth in ASEAN 6 in the two Scenarios

		Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar
Scenario 1	GDP growth (%)	0.16	0.09	0.16	2.66	0.43	0.50
	Value of change (millions of US dollars)	99.93	26.76	58.44	39.35	7.37	20.40
Scenario 2	GDP growth (%)	0.04	0.03	0.00	2.07	0.22	0.18
	Value of change (millions of US dollars)	24.35	8.62	0.00	30.60	3.67	7.21

Table 4.3: Percent changes in price of imports of commodity by private households of ASEAN 6 in Scenario 1

	Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar	Average
Grains	-0.23	-0.05	0.00	-0.30	0.02	-0.06	-0.10
Vegetables and Fruit	-0.74	-0.30	-0.11	-2.76	-0.36	-2.04	-1.05
Processed Food	-0.24	-0.46	-0.04	-2.89	-0.03	-1.56	-0.87
Textiles and Clothing	-0.13	-0.06	0.00	-1.56	0.00	-0.50	-0.38
Light Manufacturing	-0.28	-0.32	-0.02	-1.34	-0.02	-0.55	-0.42
Heavy Manufacturing	-0.16	-0.09	0.00	-1.58	-0.02	-0.72	-0.43
Sea Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The Others	-0.09	-0.04	0.00	-0.12	0.00	-0.06	-0.05
Average	-0.21	-0.15	-0.02	-1.17	-0.05	-0.61	

Note: See definition of each sector in Appendix 3

Table 4.4 : Percent changes in price of imports of commodity by private households of ASEAN 6 in Scenario 2

	Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar	Average
Grains	-0.10	-0.01	0.00	-0.29	0.01	-0.01	-0.07
Vegetables and Fruit	-0.23	-0.12	0.00	-2.36	-0.18	-0.59	-0.58
Processed Food	-0.02	-0.13	0.00	-2.22	-0.02	-0.66	-0.51
Textiles and Clothing	-0.02	-0.02	0.00	-1.23	0.00	-0.20	-0.25
Light Manufacturing	-0.04	-0.13	0.00	-1.01	-0.01	-0.24	-0.24
Heavy Manufacturing	0.00	-0.03	0.00	-1.20	-0.01	-0.34	-0.26
Sea Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The Others	-0.03	-0.03	0.00	-0.12	0.00	0.00	-0.03
Average	-0.05	-0.05	0.00	-0.94	-0.02	-0.23	

Note: See definition of each sector in Appendix 3

Table 4.5: Percent changes in export sales of commodity from exporters to importers in Scenario 1

		Importer (value of change, millions of US dollars)					
		Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar
Exporter	Thailand	-	6.19 (244.76)	0.68 (55.44)	7.06 (71.03)	0.71 (12.59)	16.66 (183.13)
	Vietnam	5.34 (57.47)	-	0.12 (1.71)	4.61 (3.11)	0.84 (4.61)	-2.69 (-0.67)
	Malaysia	12.13 (1048.38)	5.26 (121.78)	-	-8.86 (-0.89)	-0.57 (-0.77)	11.38 (68.03)
	Laos	5.64 (23.45)	22.74 (45.17)	-6.19 (-2.30)	-	-6.66 (-0.02)	-9.01 (-0.02)
	Cambodia	33.10 (18.30)	31.11 (59.79)	-1.26 (-0.38)	0.44 (0.00)	-	-1.21 (-0.01)
	Myanmar	10.49 (244.04)	1.83 (1.34)	-0.84 (-1.29)	-4.05 (-0.01)	-1.73 (0.00)	-

Table 4.6: Percent changes in export sales of commodity from exporters to importers in Scenario 2

		Importer (value of change, millions of US dollars)					
		Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar
Exporter	Thailand	-	1.99 (78.48)	-0.08 (-6.65)	5.36 (53.99)	0.35 (6.20)	8.52 (93.57)
	Vietnam	1.76 (18.92)	-	-0.02 (-0.25)	4.40 (2.97)	0.48 (2.62)	-1.24 (-0.31)
	Malaysia	-0.01 (-0.96)	0.92 (21.25)	-	-6.44 (-0.65)	-0.04 (-0.06)	2.79 (16.69)
	Laos	4.35 (18.09)	18.40 (36.55)	-5.13 (-1.91)	-	-4.35 (-0.01)	-8.70 (-0.02)
	Cambodia	14.94 (8.26)	16.63 (31.97)	-0.74 (-0.22	-	-	
	Myanmar	3.66 (85.14)	.80 (0.59)	-.025 (-0.39)	-11.11 (-0.02)	-	-

We still have room to improve trade facilitation. We need e-government, faster flow of documents, and better infrastructure.

General Manager, government export company (Myanmar)

Table 4.7: Percent changes in aggregate export commodity of ASEAN 6 in Scenario 1, FOB weights

(value of change, million of US dollars)	Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar
Grains	0.18 (0.50)	2.79 (2.07)	-0.01 (0.00)	1.58 (0.27)	28.16 (5.24)	0.63 (0.48)
Vegetables and Fruit	0.10 (1.38)	0.11 (0.88)	0.57 (1.01)	6.03 (0.42)	9.89 (3.54)	-0.14 (-0.84)
Processed Food	0.35 (52.77)	0.12 (6.91)	0.18 (22.30)	-4.29 (-0.24)	-0.39 (-0.24)	0.30 (0.67)
Textiles and Clothing	-0.03 (-2.35)	0.29 (25.50)	0.23 (6.75)	-7.30 (-13.91)	-1.05 (-37.91)	-0.06 (-0.33)
Light Manufacturing	0.45 (132.73)	0.39 (44.51)	1.02 (167.78)	43.22 (63.07)	8.63 (44.11)	2.68 (10.74)
Heavy Manufacturing	0.26 (252.78)	0.36 (33.17)	0.20 (246.42)	-4.04 (-25.81)	8.81 (16.55)	0.26 (0.83)
Sea Transport	-0.15 (-3.76)	0.15 (0.74)	-0.17 (-7.08)	-3.56 (-0.16)	-0.37 (-0.21)	-0.32 (-0.55)
Road Transport	-0.23 (-14.52)	0.03 (0.13)	-0.42 (-6.58)	-6.54 (-6.34)	-0.54 (-1.36)	-0.23 (-0.39)
The Others	-0.78 (-158.75)	-0.35 (-57.60)	-0.67 (-240.02)	-4.66 (-17.38)	-1.71 (-17.79)	0.22 (22.42)

Note: See definition of each sector in Appendix 3

Table 4.8: Percent changes in aggregate export commodity of ASEAN 6 in Scenario 2, FOB weights

(value of change, millions of US dollars)	Thailand	Vietnam	Malaysia	Laos	Cambodia	Myanmar
Grains	-0.07 (-0.20)	0.74 (0.55)	-0.06 (-0.01)	1.15 (0.20)	12.10 (2.25)	0.33 (0.26)
Vegetables and Fruit	0.00 (0.03)	0.02 (0.12)	-0.01 (0.01)	4.53 (0.32)	4.01 (1.43)	-0.04 (-0.21)
Processed Food	0.17 (26.09)	0.04 (2.16)	0.03 (4.19)	-3.29 (-0.75)	0.03 (0.02)	0.27 (0.61)
Textiles and Clothing	0.03 (2.47)	0.07 (6.54)	0.04 (1.16)	-5.75 (-10.95)	-0.54 (-19.41)	0.08 (0.45)
Light Manufacturing	0.09 (25.35)	0.17 (19.01)	0.03 (5.48)	32.61 (47.58)	4.54 (23.23)	1.45 (5.80)
Heavy Manufacturing	0.05 (51.53)	0.15 (13.94)	0.00 (1.24)	-2.94 (-18.80)	4.90 (9.21)	0.50 (1.59)
Sea Transport	-0.05 (-1.23)	0.05 (0.23)	0.00 (-0.19)	-2.83 (-0.13)	-0.20 (-0.11)	-0.07 (-0.12)
Road Transport	-0.08 (-4.97)	0.02 (0.08)	-0.01 (-0.18)	-5.17 (-5.01)	-0.29 (-0.72)	0.01 (0.01)
The Others	-0.20 (-40.09)	-0.12 (-20.37)	-0.02 (-7.46)	-3.48 (-12.97)	-0.91 (-9.47)	0.05 (5.40)

Note: See definition of each sector in Appendix 3

Policy Recommendations

This section presents prioritized policy recommendations for improving trade facilitation in ASEAN (particularly focusing on the ASEAN 6 countries – (Malaysia, Thailand, Myanmar, Lao PDR, Cambodia, and Viet Nam), based on the research summarized in the previous sections.

1) Create official training and capacity building programs for officers involved in trade facilitation

Previous literature suggested a lack of harmonization and mutual acceptance of documentation, procedures, and standards between different agencies and organizations; duplicated activities among agencies; internal resistance to reform among custom officers and brokers; operation time differences at border control; duplicated and informal checkpoints; and inconsistency in the capability of custom officers regarding agreements, laws, rules and regulations. These difficulties were further confirmed through the interviews conducted with government and private sector representatives.

The policies recommended in the past have been to increase the availability of information about agreements, laws, rules and regulations, and expedite border procedures. Though the interviewees report a slightly better clearance process, the improvement is still rather slow. Hence, to facilitate trade, we recommend a policy at two levels: enhance capacity at the operating level and urge administrative level employees to enforce the ASEAN Blueprint. This step should be completed prior to the beginning of AEC 2015. At the operational level, we recommend increased partnership with AMSs that are equipped with superior trade facilitation systems (i.e. Singapore).

2) Establish institutional reform

The lack of transparency and rampant irregular payments has increased due to the lack of standard procedures and inadequate income of officers. Officials who engage in corrupt practices can reap significant gains at the expense of the rest of the economy and society. This irregular payment is often distributed hierarchically from the top officers to operating level employees.

To cope with this problem, institutional reform is urgently needed. This should include initiatives such as: redesigning incentive structures so that the officer acts in the interest of the trade facilitation rather than in his or her own interest, adopting administrative reforms to introduce competitive pressures in the customs departments and other involved agencies, conducting surveys to monitor the reduction of irregular payments, strengthening independent audits and investigative bodies, making the system more transparent and easy to comply with, and finally, adopting information technology systems to reduce informal processes.

3) Improve infrastructure

Poor infrastructure and poor transportation facilities are present due to low government investment in these projects. Different traffic systems and driving lanes cause unnecessary truck changing. The investment of infrastructure improvements is bound to come. However, the lack of synchronization and cooperation among neighboring countries reduces the potential for strategic corridor planning to enhance trade facilitation, and the efficacy and effectiveness in funding and delivering these projects. Hence, to direct the projects, a committee in cooperation with the ASEAN Connectivity Coordinating

Committee should be formed which would synchronize the development, overhaul the system, and overcome the problems caused by different traffic laws. Finally, funding agencies should be included in the body to facilitate project funding.

4) Encourage greater competition among logistics providers

Fear of competition in logistics services causes ASEAN governments and local logistic providers to hesitate in fostering a competitive environment. As a result, few local logistic providers are available, which leads to high cost logistical services and a slowdown in the improvement of the trade facilitation system. Encouraging a competitive environment should be considered along with capacity building of local logistic providers. Patriotic behavior to obstruct trade liberalization is often found when local firms do not benefit from the economic integration. Hence, creating initiatives to incorporate local firms into economic growth are needed.

5) Encourage the establishment of industrial clusters across regional production zones

The review of the trade structure showed that most of the trade in 2010 was in raw materials. To encourage more intra-trade, inter-linkage of industrial clusters across the region should be formed. This inter-linkage will stimulate trade in intermediate goods and encourage industries to exploit the comparative advantage of each country. The establishment of industry in turn will raise demand for logistics services and trade facilitation. The improvement process of trade facilitation is likely to be sped up due to the pressure for reform from the private sector. Existing linkages are found in agribusiness, electronics and parts, automobiles and parts and should be enhanced. To encourage more linkages, public-private-partnership projects should be formed.

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Appendix

Appendix 1: Details trade flow HS 2 digits, 2010 (Unit : US Million Dollar)

01							
From/to	Cambodia	Thailand	Myanmar	Malaysia	Laos PDR	Viet Nam	ROW
Cambodia	-	-	-	-	-	-	-
Thailand	51.964	-	1.259	31.353	16.597	1.852	103.02
Myanmar	-	5.416	-	0.452	-	-	5.868
Malaysia	0.005	0.418	-	-	-	0.239	0.662
Laos PDR	-	0.016	-	0.002	-	3.777	3.795
Viet Nam	0.001	0.002	-	0.005	0.008	-	0.016
ROW	51.970	5.852	1.259	31.812	16.605	5.868	113.36
02							
Cambodia	-	-	-	-	-	0.023	0.023
Thailand	0.296	-	4.192	15.877	22.700	17.480	60.545
Myanmar	-	0.017	-	0.033	-	-	0.050
Malaysia	0.068	2.647	0.244	-	-	1.923	4.882
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.052	-	-	7.090	0.530	-	7.672
ROW	0.416	2.664	4.436	23.000	23.230	19.426	73.172
03							
Cambodia	-	-	-	0.031	-	0.081	0.112
Thailand	0.323	-	1.091	50.43	0.541	60.13	112.52
Myanmar	-	65.82	-	35.14	-	-	100.96
Malaysia	0.024	22.68	0.070	-	-	41.81	64.59
Laos PDR	-	0.029	-	0.011	-	-	0.040
Viet Nam	3.548	106.15	0.028	55.15	0.340	-	165.2
ROW	3.895	194.69	1.189	140.77	0.881	102.03	443.47
04							
Cambodia	-	-	-	-	-	-	-
Thailand	49.748	-	17.869	3.638	24.211	5.275	100.74
Myanmar	-	1.445	-	-	-	-	1.445
Malaysia	0.425	1.680	1.783	-	-	3.378	7.266
Laos PDR	-	0.042	-	-	-	-	0.042
Viet Nam	15.529	0.643	-	0.403	0.002	-	16.57
ROW	65.702	3.810	19.652	4.041	24.213	8.653	126.07
05							
Cambodia	-	-	-	-	-	-	-
Thailand	0.006	-	0.010	0.093	0.006	2.635	2.750
Myanmar	-	2.326	-	-	-	-	2.326
Malaysia	-	0.643	-	-	-	0.878	1.521
Laos PDR	-	0.002	-	-	-	-	0.002
Viet Nam	0.420	4.775	-	0.316	-	-	5.511
ROW	0.426	7.746	0.010	0.409	0.006	3.513	12.110

06							
Cambodia	-	-	-	-	-	0.044	0.044
Thailand	0.074	-	0.517	0.328	0.833	2.898	4.650
Myanmar	-	-	-	-	-	-	-
Malaysia	-	1.746	-	-	-	0.047	1.793
Laos PDR	-	-	-	-	-	0.076	0.076
Viet Nam	2.311	0.040	-	0.022	0.304	-	2.677
ROW	2.385	1.786	0.517	0.350	1.137	3.065	9.240
07							
Cambodia	-	0.822	-	-	-	-	0.822
Thailand	1.333	-	0.612	15.400	0.290	4.276	21.911
Myanmar	0.024	25.913	-	37.717	-	-	63.654
Malaysia	0.024	5.759	0.028	-	-	0.595	6.406
Laos PDR	-	6.452	-	-	-	0.364	6.816
Viet Nam	4.274	2.440	-	16.563	13.536	-	36.813
ROW	5.655	41.386	0.640	69.680	13.826	5.235	136.422
08							
Cambodia	-	-	-	-	-	-	-
Thailand	4.583	-	12.450	7.101	11.969	19.046	55.149
Myanmar	-	1.901	-	1.008	-	-	2.909
Malaysia	0.335	5.813	0.001	-	-	0.286	6.435
Laos PDR	-	2.770	-	-	-	0.041	2.811
Viet Nam	14.367	61.495	-	10.521	3.236	-	89.619
ROW	19.285	71.979	12.451	18.630	15.205	19.373	156.923
09							
Cambodia	-	-	-	0.001	-	0.006	0.007
Thailand	0.461	-	1.757	0.758	0.202	0.120	3.298
Myanmar	-	1.011	-	0.947	-	-	1.958
Malaysia	0.002	10.455	0.003	-	-	4.557	15.017
Laos PDR	-	0.310	-	-	-	5.243	5.553
Viet Nam	0.173	53.429	0.041	102.377	0.440	-	156.460
ROW	0.636	65.205	1.801	104.083	0.642	9.926	182.293
10							
Cambodia	-	1.073	-	0.822	-	1.199	3.094
Thailand	5.044	-	2.027	246.116	11.937	79.483	344.607
Myanmar	-	1.280	-	2.482	-	-	3.762
Malaysia	-	0.337	0.033	-	-	1.335	1.705
Laos PDR	-	21.325	-	-	-	8.016	29.341
Viet Nam	1.917	0.293	-	452.909	6.884	-	462.003
ROW	6.961	24.308	2.060	702.329	18.821	90.033	844.512
11							
Cambodia	-	-	-	-	0.180	2.268	2.448
Thailand	2.946	-	3.221	123.885	5.173	11.069	146.294
Myanmar	-	0.007	-	0.282	-	-	0.289
Malaysia	1.949	4.748	0.014	-	-	0.612	7.323
Laos PDR	-	-	-	-	-	0.156	0.156
Viet Nam	10.755	12.294	-	11.652	0.950	-	35.651
ROW	15.650	17.049	3.235	135.819	6.303	14.105	192.161

12							
Cambodia	-	1.302	-	0.176	-	0.506	1.984
Thailand	1.362	-	2.147	6.933	0.195	10.954	21.591
Myanmar	-	0.576	-	0.166	-	-	0.742
Malaysia	0.003	0.954	-	-	0.005	2.964	3.926
Laos PDR	-	4.257	-	0.002	-	0.487	4.746
Viet Nam	0.163	25.776	-	7.669	0.020	-	33.628
ROW	1.528	32.865	2.147	14.946	0.220	14.911	66.617
13							
Cambodia	-	-	-	-	-	-	-
Thailand	0.206	-	1.438	0.405	0.038	0.491	2.578
Myanmar	-	0.021	-	0.458	-	-	0.479
Malaysia	-	0.140	0.003	-	-	0.273	0.416
Laos PDR	-	0.403	-	-	-	0.083	0.486
Viet Nam	-	0.157	-	0.115	0.006	-	0.278
ROW	0.206	0.721	1.441	0.978	0.044	0.847	4.237
14							
Cambodia	-	-	-	-	-	-	-
Thailand	-	-	0.001	0.098	0.017	0.026	0.142
Myanmar	-	0.615	-	-	-	-	0.615
Malaysia	0.014	12.714	0.031	-	-	6.163	18.922
Laos PDR	-	0.891	-	-	-	0.059	0.950
Viet Nam	-	0.587	-	0.075	-	-	0.662
ROW	0.014	14.807	0.032	0.173	0.017	6.248	21.291
15							
Cambodia	-	-	-	0.511	-	0.351	0.862
Thailand	27.953	-	61.708	226.404	5.318	29.444	350.827
Myanmar	-	-	-	-	-	-	-
Malaysia	4.218	118.498	165.852	-	0.285	359.796	648.649
Laos PDR	-	-	-	-	-	0.002	0.002
Viet Nam	40.921	0.094	-	0.794	0.006	-	41.815
ROW	73.092	118.592	227.560	227.709	5.609	389.593	1,042.1
16							
Cambodia	-	-	-	-	-	-	-
Thailand	15.117	-	8.999	30.404	2.222	1.752	58.494
Myanmar	-	-	-	0.005	-	-	0.005
Malaysia	0.164	4.665	0.036	-	-	1.454	6.319
Laos PDR	-	-	-	-	-	-	-
Viet Nam	7.765	24.256	-	7.414	0.008	-	39.443
ROW	23.046	28.921	9.035	37.823	2.230	3.206	104.261
17							
Cambodia	-	0.545	-	0.002	-	-	0.547
Thailand	281.167	-	19.421	191.495	25.159	141.192	658.434
Myanmar	-	-	-	0.142	-	-	0.142
Malaysia	2.857	3.085	0.065	-	-	28.316	34.323
Laos PDR	-	2.439	-	-	-	-	2.439
Viet Nam	3.798	18.665	-	17.693	0.164	-	40.320
ROW	287.822	24.734	19.486	209.332	25.323	169.508	736.205

18							
Cambodia	-	-	-	-	-	-	-
Thailand	1.255	-	3.774	11.301	1.945	3.286	21.561
Myanmar	-	-	-	-	-	-	-
Malaysia	0.243	37.448	0.459	-	-	7.133	45.283
Laos PDR	-	-	-	-	-	-	-
Viet Nam	2.121	0.741	-	6.793	0.048	-	9.703
ROW	3.619	38.189	4.233	18.094	1.993	10.419	76.547
19							
Cambodia	-	-	-	0.009	-	-	0.009
Thailand	53.990	-	62.694	111.032	43.627	49.654	320.997
Myanmar	-	-	-	0.075	-	-	0.075
Malaysia	7.583	73.478	6.735	-	-	37.684	125.480
Laos PDR	-	-	-	-	-	-	-
Viet Nam	47.984	6.082	0.316	2.947	4.412	-	61.741
ROW	109.557	101.962	71.945	138.671	48.039	91.221	561.395
20							
Cambodia	-	-	-	0.015	-	-	0.015
Thailand	17.495	-	14.857	28.490	14.097	3.115	78.054
Myanmar	-	0.077	-	0.272	-	-	0.349
Malaysia	0.686	13.649	0.067	-	-	3.266	17.668
Laos PDR	-	1.481	-	-	-	0.032	1.513
Viet Nam	1.120	2.676	-	3.675	0.766	-	8.237
ROW	19.301	17.883	14.924	32.452	14.863	6.413	105.836
21							
Cambodia	-	-	-	-	-	-	-
Thailand	93.801	-	127.448	46.391	51.333	54.075	373.048
Myanmar	-	0.003	-	0.087	-	-	0.090
Malaysia	0.728	70.128	2.877	-	-	27.748	101.481
Laos PDR	-	0.014	-	-	-	-	0.014
Viet Nam	4.692	10.775	0.521	19.537	0.154	-	35.679
ROW	99.221	80.920	130.846	66.015	51.487	81.823	510.312
22							
Cambodia	-	-	-	-	-	3.468	3.468
Thailand	145.883	-	155.912	37.070	37.814	88.500	465.179
Myanmar	-	-	-	0.131	-	-	0.131
Malaysia	6.424	86.704	0.586	-	-	96.728	190.442
Laos PDR	-	0.053	-	-	-	0.098	0.151
Viet Nam	26.356	16.719	-	5.257	1.510	-	49.842
ROW	178.663	103.476	156.498	42.458	39.324	188.794	709.213
23							
Cambodia	-	-	-	-	-	0.038	0.038
Thailand	52.876	-	7.357	68.870	22.943	67.589	219.635
Myanmar	-	1.569	-	5.266	-	-	6.835
Malaysia	0.173	3.924	0.331	-	-	19.200	23.628
Laos PDR	-	0.073	-	-	-	-	0.073
Viet Nam	35.738	7.458	0.581	50.170	1.970	-	95.917
ROW	88.787	13.024	8.269	124.306	24.913	86.827	346.126

24							
Cambodia	-	0.370	-	2.000	0.185	2.090	4.645
Thailand	1.224	-	1.151	5.180	2.332	5.658	15.545
Myanmar	-	-	-	0.003	-	-	0.003
Malaysia	2.120	34.055	0.015	-	-	23.186	59.376
Laos PDR	0.491	3.799	-	-	-	1.400	5.690
Viet Nam	11.045	4.671	0.531	10.145	2.480	-	28.872
ROW	14.880	42.895	1.697	17.328	4.997	32.334	114.131
25							
Cambodia	-	-	-	-	-	0.014	0.014
Thailand	107.822	-	153.726	62.267	43.085	100.212	467.112
Myanmar	-	0.301	-	-	-	-	0.301
Malaysia	-	10.518	4.550	-	-	9.427	24.495
Laos PDR	-	3.973	-	-	-	13.084	17.057
Viet Nam	1.905	13.093	0.020	3.849	10.990	-	29.857
ROW	109.727	27.885	158.296	66.116	54.075	122.737	538.836
26							
Cambodia	-	-	-	-	0.007	-	0.007
Thailand	0.461	-	0.001	1.271	0.256	0.007	1.996
Myanmar	-	2.322	-	6.243	-	-	8.565
Malaysia	-	1.255	-	-	-	1.233	2.488
Laos PDR	-	1.187	-	-	-	0.644	1.831
Viet Nam	-	0.228	-	0.532	-	-	0.760
ROW	0.461	4.992	0.001	8.046	0.263	1.884	15.647
27							
Cambodia	-	-	-	-	-	0.001	0.001
Thailand	515.729	-	328.580	1,195.8	576.703	741.755	3,358.6
Myanmar	-	2,595.4	-	-	-	-	2,595.4
Malaysia	2.363	1,771.9	24.116	-	-	317.284	2,115.6
Laos PDR	-	284.33	-	-	-	0.011	284.3
Viet Nam	834.744	208.61	-	1,931.9	106.560	-	3,081.8
ROW	1,352.6	4,860.2	352.696	3,127.8	683.263	1,059.0	11,435.9
28							
Cambodia	-	-	-	-	-	-	-
Thailand	3.680	-	4.538	51.514	11.975	41.855	113.562
Myanmar	-	0.006	-	-	-	-	0.006
Malaysia	0.121	47.392	1.081	-	-	16.284	64.878
Laos PDR	-	0.015	-	-	-	0.006	0.021
Viet Nam	1.716	1.889	0.010	4.044	0.234	-	7.893
ROW	19.301	17.883	14.924	32.452	14.863	6.413	105.836
29							
Cambodia	-	-	-	-	-	0.059	0.059
Thailand	11.663	-	42.133	303.703	22.640	148.280	528.419
Myanmar	-	-	-	-	-	-	-
Malaysia	0.244	263.171	0.399	-	-	129.683	393.497
Laos PDR	-	-	-	-	-	0.045	0.045
Viet Nam	4.675	18.476	2.503	10.325	1.216	-	37.195
ROW	99.221	80.920	130.846	66.015	51.487	81.823	510.312

30							
Cambodia	-	-	-	0.092	-	0.153	0.245
Thailand	26.550	-	40.493	20.041	9.011	57.849	153.944
Myanmar	-	0.001	-	-	-	-	0.001
Malaysia	3.595	4.586	6.995	-	0.072	8.624	23.872
Laos PDR	-	-	-	-	-	-	-
Viet Nam	5.902	1.536	4.058	6.789	1.516	-	19.801
ROW	178.663	103.476	156.498	42.458	39.324	188.794	709.213
31							
Cambodia	-	0.155	-	-	-	-	0.155
Thailand	44.203	-	9.434	2.246	13.896	2.734	72.513
Myanmar	-	0.176	-	-	-	-	0.176
Malaysia	0.062	145.349	3.644	-	-	23.910	172.965
Laos PDR	-	1.359	-	-	-	-	1.359
Viet Nam	94.593	12.338	0.547	37.258	12.308	-	157.044
ROW	140.626	390.194	51.874	176.822	29.529	498.007	1,287.0
32							
Cambodia	-	-	-	-	-	-	-
Thailand	14.080	-	16.522	30.279	8.614	27.537	97.032
Myanmar	-	-	-	-	-	-	-
Malaysia	4.262	36.576	3.461	-	-	46.074	90.373
Laos PDR	-	-	-	-	-	-	-
Viet Nam	4.725	10.035	0.064	5.616	0.384	-	20.824
ROW	23.067	46.611	20.047	35.895	8.998	73.611	208.229
33							
Cambodia	-	0.014	-	-	-	0.003	0.017
Thailand	78.360	-	40.747	134.021	22.534	70.677	346.339
Myanmar	-	0.055	-	1.024	-	-	1.079
Malaysia	0.841	33.222	2.141	-	0.050	29.691	65.945
Laos PDR	-	-	-	-	-	-	-
Viet Nam	5.892	18.960	0.138	8.776	0.208	-	33.974
ROW	85.093	52.251	43.026	143.821	22.792	100.371	447.354
34							
Cambodia	-	0.005	-	-	-	0.009	0.014
Thailand	50.229	-	26.668	69.320	23.919	46.885	217.021
Myanmar	-	-	-	-	-	-	-
Malaysia	0.377	31.233	4.529	-	-	18.206	54.345
Laos PDR	-	0.002	-	-	-	-	0.002
Viet Nam	26.587	7.830	0.061	41.901	0.046	-	76.425
ROW	77.193	39.070	31.258	111.221	23.965	65.100	347.807
35							
Cambodia	-	-	-	-	-	-	-
Thailand	1.331	-	3.081	23.779	2.099	13.769	44.059
Myanmar	-	-	-	-	-	-	-
Malaysia	0.496	6.284	1.131	-	-	8.467	16.378
Laos PDR	-	0.013	-	-	-	-	0.013
Viet Nam	4.670	3.436	0.001	2.935	0.050	-	11.092
ROW	6.497	9.733	4.213	26.714	2.149	22.236	71.542

36							
Cambodia	-	-	-	-	-	-	-
Thailand	0.259	-	1.433	1.117	0.558	-	3.367
Myanmar	-	-	-	-	-	-	-
Malaysia	-	1.684	0.313	-	0.707	0.153	2.857
Laos PDR	0.139	0.014	-	-	-	-	0.153
Viet Nam	-	0.022	-	0.320	0.142	-	0.484
ROW	0.398	1.720	1.746	1.437	1.407	0.153	6.861
37							
Cambodia	-	-	-	-	-	-	-
Thailand	0.495	-	0.926	8.614	0.638	0.957	11.630
Myanmar	-	-	-	-	-	-	-
Malaysia	0.043	11.130	0.245	-	-	3.175	14.593
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.143	0.436	-	0.899	-	-	1.478
ROW	0.681	11.566	1.171	9.513	0.638	4.132	27.701
38							
Cambodia	-	0.001	-	-	-	-	0.001
Thailand	16.786	-	20.0	39.243	10.672	88.811	175.5
Myanmar	-	0.101	-	-	-	-	0.101
Malaysia	2.032	181.8	5.974	-	-	39.9	229.8
Laos PDR	-	0.015	-	-	-	-	0.015
Viet Nam	8.755	43.928	1.391	19.291	2.134	-	75.499
ROW	27.5	225.8	27.450	58.534	12.806	128.7	481.0
39							
Cambodia	-	0.014	-	0.385	-	0.431	0.830
Thailand	74.455	-	99.508	536.3	59.343	527.4	1,297.1
Myanmar	-	0.001	-	0.004	-	-	0.005
Malaysia	8.584	422.7	26.645	-	0.158	235.8	694.0
Laos PDR	0.177	0.245	-	-	-	0.623	1.045
Viet Nam	77.138	83.726	3.284	66.948	10.054	-	241.1
ROW	160.3	506.7	129.4	603.6	69.555	764.4	2,234
40							
Cambodia	-	2.655	-	7.992	-	61.695	72.342
Thailand	94.921	-	46.199	1,965.	43.018	302.51	2,452.
Myanmar	-	0.020	-	92.394	-	-	92.414
Malaysia	1.435	146.7	2.563	-	0.026	63.389	214.13
Laos PDR	-	0.105	-	-	-	0.357	0.462
Viet Nam	13.419	21.840	2.377	451.62	7.162	-	496.42
ROW	109.77	171.34	51.139	2,517.6	50.206	427.95	3,328.0
41							
Cambodia	-	-	-	0.511	-	0.351	0.862
Thailand	27.953	-	61.708	226.404	5.318	29.444	350.827
Myanmar	-	-	-	-	-	-	-
Malaysia	4.218	118.498	165.852	-	0.285	359.796	648.649
Laos PDR	-	-	-	-	-	0.002	0.002
Viet Nam	40.921	0.094	-	0.794	0.006	-	41.815
ROW	73.092	118.592	227.560	227.709	5.609	389.593	1,042.1

42							
Cambodia	-	0.002	-	-	-	-	0.002
Thailand	1.195	-	1.460	3.301	0.432	1.966	8.354
Myanmar	-	-	-	-	-	-	-
Malaysia	0.095	3.169	0.109	-	-	0.476	3.849
Laos PDR	-	0.221	-	-	-	-	0.221
Viet Nam	0.183	6.120	-	6.150	0.226	-	12.679
ROW	1.473	9.512	1.569	9.451	0.658	2.442	25.105
43							
Cambodia	-	-	-	-	-	-	-
Thailand	0.001	-	0.020	0.124	0.689	0.063	0.897
Myanmar	-	-	-	-	-	-	-
Malaysia	0.002	1.479	-	-	-	0.018	1.499
Laos PDR	-	0.015	-	-	-	-	0.015
Viet Nam	0.040	0.099	-	-	-	-	0.139
ROW	0.043	1.593	0.020	0.124	0.689	0.081	2.550
44							
Cambodia	-	0.104	-	-	-	4.188	4.292
Thailand	1.862	-	1.987	103.2	2.049	80.559	189.6
Myanmar	-	72.405	-	23.558	-	-	95.963
Malaysia	0.232	196.0	0.298	-	0.030	76.616	273
Laos PDR	0.301	51.010	-	0.030	-	1	214.376
Viet Nam	1.121	2.748	0.087	39.060	0.730	-	43.746
ROW	3.516	322.3	2.372	165.875	2.809	324.398	821.3
45							
Cambodia	-	-	-	-	-	-	-
Thailand	0.001	-	0.049	0.002	0.028	-	0.080
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.225	-	-	-	-	0.225
Laos PDR	-	-	-	-	-	-	-
Viet Nam	-	-	-	-	-	-	-
ROW	0.001	0.225	0.049	0.002	0.028	-	0.305
46							
Cambodia	-	0.002	-	-	-	0.001	0.003
Thailand	0.487	-	1.749	0.516	0.821	0.102	3.675
Myanmar	-	0.276	-	0.106	-	-	0.382
Malaysia	-	0.159	0.005	-	-	-	0.164
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.012	0.926	-	1.355	0.112	-	2.405
ROW	0.499	1.363	1.754	1.977	0.933	0.103	6.629
47							
Cambodia	-	-	-	-	-	0.510	0.510
Thailand	0.005	-	0.111	3.175	0.128	2.035	5.454
Myanmar	-	0.944	-	-	-	-	0.944
Malaysia	-	6.374	0.045	-	-	1.020	7.439
Laos PDR	-	1.266	-	-	-	0.316	1.582
Viet Nam	0.009	0.298	-	0.022	-	-	0.329
ROW	0.014	8.882	0.156	3.197	0.128	3.881	16.258

48							
Cambodia	-	0.155	-	0.005	-	0.098	0.258
Thailand	40.796	-	14.616	146.02	24.388	143.96	369.7
Myanmar	-	0.007	-	-	-	-	0.007
Malaysia	4.281	85.092	2.716	-	0.036	42.99	135.1
Laos PDR	-	0.004	-	-	-	0.002	0.006
Viet Nam	23.818	12.017	0.215	29.945	7.830	-	73.825
ROW	68.895	97.275	17.547	175.97	32.254	187.06	579.0
49							
Cambodia	-	0.006	-	0.011	-	-	0.017
Thailand	0.117	-	2.175	3.133	5.415	5.548	16.388
Myanmar	-	0.005	-	0.004	-	-	0.009
Malaysia	0.348	4.857	0.074	-	0.010	1.014	6.303
Laos PDR	0.001	4.284	-	0.013	-	-	4.298
Viet Nam	1.521	0.880	-	0.324	0.094	-	2.819
ROW	1.987	10.032	2.249	3.485	5.519	6.562	29.834
50							
Cambodia	-	-	-	-	-	0.001	0.001
Thailand	0.006	-	-	0.082	0.053	0.032	0.173
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.013	-	-	-	-	0.013
Laos PDR	-	0.040	-	-	-	-	0.040
Viet Nam	2.993	1.700	-	0.007	4.128	-	8.828
ROW	2.999	1.753	-	0.089	4.181	0.033	9.055
51							
Cambodia	-	-	-	-	-	-	-
Thailand	0.033	-	0.004	0.060	0.001	0.073	0.171
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.494	-	-	-	0.004	0.498
Laos PDR	-	0.001	-	-	-	-	0.001
Viet Nam	0.007	0.002	0.022	0.026	-	-	0.057
ROW	0.040	0.497	0.026	0.086	0.001	0.077	0.727
52							
Cambodia	-	-	-	0.032	-	0.037	0.069
Thailand	20.305	-	40.760	26.415	23.663	34.932	146.07
Myanmar	-	3.928	-	-	-	-	3.928
Malaysia	0.530	4.179	0.063	-	0.021	23.535	28.328
Laos PDR	-	0.144	-	-	-	0.002	0.146
Viet Nam	7.081	36.762	0.098	55.430	2.134	-	101.50
ROW	27.916	45.013	40.921	81.877	25.818	58.506	280.05
53							
Cambodia	-	-	-	-	-	-	-
Thailand	0.004	-	0.018	0.127	0.029	0.034	0.212
Myanmar	-	0.001	-	0.025	-	-	0.026
Malaysia	-	0.164	-	-	-	0.002	0.166
Laos PDR	-	0.264	-	-	-	-	0.264
Viet Nam	0.006	0.005	-	0.350	0.020	-	0.381
ROW	0.010	0.434	0.018	0.502	0.049	0.036	1.049

54							
Cambodia	-	0.014	-	-	-	-	0.014
Thailand	6.463	-	20.174	21.152	5.012	86.801	139.60
Myanmar	-	0.061	-	0.126	-	-	0.187
Malaysia	1.139	21.497	0.892	-	-	38.451	61.979
Laos PDR	-	0.077	-	-	-	0.013	0.090
Viet Nam	17.323	134.38	1.118	19.496	6.076	-	178.40
ROW	24.925	156.03	22.184	40.774	11.088	125.26	380.27
55							
Cambodia	-	-	-	0.013	-	0.432	0.445
Thailand	5.365	-	17.541	10.123	8.748	115.010	156.787
Myanmar	-	-	-	-	-	-	-
Malaysia	2.053	3.301	0.169	-	3.513	12.758	21.794
Laos PDR	-	0.019	-	-	-	0.196	0.215
Viet Nam	42.744	26.371	0.233	28.914	6.716	-	104.978
ROW	50.162	29.691	17.943	39.050	18.977	128.396	284.219
56							
Cambodia	-	-	-	-	-	-	-
Thailand	19.368	-	28.855	20.872	3.781	14.375	87.251
Myanmar	-	-	-	0.003	-	-	0.003
Malaysia	0.243	13.531	0.399	-	-	7.627	21.800
Laos PDR	-	-	-	-	-	0.048	0.048
Viet Nam	3.233	1.665	0.581	5.106	0.382	-	10.967
ROW	22.844	15.196	29.835	25.981	4.163	22.050	120.069
57							
Cambodia	-	-	-	-	-	-	-
Thailand	0.739	-	0.357	7.899	0.364	4.058	13.417
Myanmar	-	-	-	-	-	-	-
Malaysia	0.086	0.960	-	-	-	0.535	1.581
Laos PDR	-	0.006	-	-	-	-	0.006
Viet Nam	0.099	0.065	-	0.654	0.002	-	0.820
ROW	0.924	1.031	0.357	8.553	0.366	4.593	15.824
58							
Cambodia	-	0.003	-	-	-	0.021	0.024
Thailand	3.314	-	2.803	1.574	4.279	10.674	22.644
Myanmar	-	-	-	0.010	-	-	0.010
Malaysia	0.882	0.233	0.055	-	-	0.342	1.512
Laos PDR	-	0.107	-	-	-	-	0.107
Viet Nam	3.536	1.658	0.485	0.127	0.814	-	6.620
ROW	7.732	2.001	3.343	1.711	5.093	11.037	30.917
59							
Cambodia	-	-	-	0.001	-	0.007	0.008
Thailand	1.020	-	1.533	9.024	1.019	14.445	27.041
Myanmar	-	-	-	-	-	-	-
Malaysia	1.169	2.415	0.078	-	-	1.136	4.798
Laos PDR	-	-	-	-	-	-	-
Viet Nam	1.633	6.622	1.532	9.828	0.116	-	19.731
ROW	3.822	9.037	3.143	18.853	1.135	15.588	51.578

60							
Cambodia	-	0.012	-	0.271	-	0.164	0.447
Thailand	41.019	-	1.917	10.394	32.710	41.821	127.861
Myanmar	-	-	-	-	-	-	-
Malaysia	81.663	4.074	0.072	-	2.406	7.016	95.231
Laos PDR	-	0.131	-	-	-	0.086	0.217
Viet Nam	72.850	6.974	0.189	9.232	3.726	-	92.971
ROW	195.532	11.191	2.178	19.897	38.842	49.087	316.727
61							
Cambodia	-	0.543	-	1.279	0.019	0.369	2.210
Thailand	9.438	-	7.728	12.306	6.391	3.250	39.113
Myanmar	-	0.001	-	0.070	-	-	0.071
Malaysia	3.412	3.423	0.009	-	-	0.641	7.485
Laos PDR	0.005	1.397	-	0.010	-	0.929	2.341
Viet Nam	2.108	5.063	0.002	10.152	2.416	-	19.741
ROW	14.963	10.427	7.739	23.817	8.826	5.189	70.961
62							
Cambodia	-	0.004	-	0.023	-	0.013	0.040
Thailand	3.462	-	13.281	19.863	1.848	6.413	44.867
Myanmar	-	0.821	-	3.559	0.004	-	4.384
Malaysia	0.743	4.191	0.067	-	-	1.620	6.621
Laos PDR	-	2.275	-	-	-	0.005	2.280
Viet Nam	1.196	5.884	0.012	13.229	1.530	-	21.851
ROW	5.401	13.175	13.360	36.674	3.382	8.051	80.043
63							
Cambodia	-	0.491	-	0.377	-	0.446	1.314
Thailand	8.618	-	10.160	8.374	0.950	1.795	29.897
Myanmar	-	0.047	-	3.626	-	-	3.673
Malaysia	1.507	8.019	1.393	-	0.009	6.286	17.214
Laos PDR	-	0.164	-	-	-	-	0.164
Viet Nam	8.675	22.094	0.332	10.542	1.068	-	42.711
ROW	18.800	30.815	11.885	22.919	2.027	8.527	94.973
64							
Cambodia	-	0.040	-	0.139	-	0.657	0.836
Thailand	6.596	-	24.598	3.335	2.020	5.753	42.302
Myanmar	0.008	6.218	-	0.004	-	-	6.230
Malaysia	0.148	8.943	0.048	-	-	2.332	11.471
Laos PDR	-	0.056	-	-	-	-	0.056
Viet Nam	29.255	22.331	0.003	55.470	1.384	-	108.443
ROW	36.007	37.588	24.649	58.948	3.404	8.742	169.338
65							
Cambodia	-	0.004	-	0.017	-	0.015	0.036
Thailand	1.175	-	0.899	0.198	1.077	0.155	3.504
Myanmar	-	-	-	0.002	-	-	0.002
Malaysia	0.021	0.081	0.005	-	-	0.130	0.237
Laos PDR	0.004	-	-	-	-	-	0.004
Viet Nam	0.345	0.493	0.017	0.481	-	-	1.336
ROW	1.545	0.578	0.921	0.698	1.077	0.300	5.119

66							
Cambodia	-	-	-	-	-	-	-
Thailand	0.024	-	0.282	0.034	0.068	0.101	0.509
Myanmar	-	0.001	-	-	-	-	0.001
Malaysia	0.005	0.004	-	-	-	0.007	0.016
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.069	0.025	-	-	0.002	-	0.096
ROW	0.098	0.030	0.282	0.034	0.070	0.108	0.622
67							
Cambodia	-	-	-	-	-	-	-
Thailand	0.071	-	0.020	0.029	0.003	0.083	0.206
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.001	-	-	-	-	0.001
Laos PDR	-	-	-	-	-	-	-
Viet Nam	-	0.009	0.042	0.088	-	-	0.139
ROW	0.071	0.010	0.062	0.117	0.003	0.083	0.346
68							
Cambodia	-	-	-	-	-	0.004	0.004
Thailand	24.992	-	13.508	12.856	24.813	25.625	101.794
Myanmar	-	0.074	-	0.015	-	-	0.089
Malaysia	1.846	9.459	2.071	-	0.008	8.326	21.710
Laos PDR	-	0.020	-	-	-	0.004	0.024
Viet Nam	3.600	1.192	0.068	3.912	2.554	-	11.326
ROW	30.438	10.745	15.647	16.783	27.375	33.959	134.947
69							
Cambodia	-	0.918	-	-	0.012	-	0.930
Thailand	11.831	-	14.649	24.776	28.180	5.814	85.250
Myanmar	-	0.011	-	0.006	-	-	0.017
Malaysia	0.381	18.170	0.738	-	-	5.410	24.699
Laos PDR	-	0.005	-	-	-	-	0.005
Viet Nam	18.818	29.376	1.599	18.735	2.174	-	70.702
ROW	31.030	48.480	16.986	43.517	30.366	11.224	181.603
70							
Cambodia	-	-	-	0.064	-	-	0.064
Thailand	6.485	-	11.667	30.037	9.313	47.275	104.777
Myanmar	-	-	-	0.110	-	-	0.110
Malaysia	0.641	33.601	0.566	-	-	8.926	43.734
Laos PDR	-	0.027	-	-	-	-	0.027
Viet Nam	7.960	8.417	0.022	110.284	0.754	-	127.437
ROW	15.086	42.045	12.255	140.495	10.067	56.201	276.149
71							
Cambodia	-	0.925	-	0.501	-	0.009	1.435
Thailand	19.731	-	0.418	39.735	1.315	65.385	126.584
Myanmar	-	0.651	-	0.002	-	-	0.653
Malaysia	-	204.371	0.155	-	-	3.255	207.781
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.033	6.403	-	0.452	-	-	6.888
ROW	19.764	212.350	0.573	40.690	1.315	68.649	343.341

72							
Cambodia	-	-	-	-	-	2.686	2.686
Thailand	33.386	-	65.626	125.114	85.298	166.393	475.817
Myanmar	-	0.123	-	-	-	-	0.123
Malaysia	0.070	162.438	0.238	-	-	397.418	560.164
Laos PDR	-	0.139	-	-	-	0.128	0.267
Viet Nam	219.149	109.052	9.135	248.294	61.014	-	646.644
ROW	252.605	271.752	74.999	373.408	146.312	566.625	1,685.7
73							
Cambodia	-	0.335	-	0.104	-	0.094	0.533
Thailand	49.743	-	46.472	171.509	59.897	168.135	495.756
Myanmar	-	0.077	-	0.488	-	-	0.565
Malaysia	4.034	280.474	30.265	-	0.006	64.489	379.268
Laos PDR	-	0.567	-	-	-	0.001	0.568
Viet Nam	64.646	26.019	1.914	95.738	30.604	-	218.921
ROW	118.423	307.472	78.651	267.839	90.507	232.719	1,095.6
74							
Cambodia	-	-	-	-	-	-	-
Thailand	0.547	-	2.117	115.567	0.941	56.081	175.253
Myanmar	-	17.053	-	8.091	-	-	25.144
Malaysia	0.109	147.638	0.459	-	-	18.126	166.332
Laos PDR	-	309.218	-	2.119	-	88.378	399.715
Viet Nam	0.186	32.384	0.045	0.671	3.762	-	37.048
ROW	0.842	506.293	2.621	126.448	4.703	162.585	803.492
75							
Cambodia	-	-	-	-	-	-	-
Thailand	-	-	0.002	0.180	0.015	0.096	0.293
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.663	-	-	-	1.161	1.824
Laos PDR	-	-	-	-	-	-	-
Viet Nam	-	-	-	0.022	-	-	0.022
ROW	-	0.663	0.002	0.202	0.015	1.257	2.139
76							
Cambodia	-	-	-	0.920	-	1.232	2.152
Thailand	12.234	-	16.202	54.125	4.900	30.081	117.542
Myanmar	-	0.006	-	-	-	-	0.006
Malaysia	6.755	164.081	6.496	-	0.358	55.398	233.088
Laos PDR	-	0.001	-	-	-	0.063	0.064
Viet Nam	16.474	12.059	0.090	4.022	2.508	-	35.153
ROW	35.463	176.147	22.788	59.067	7.766	86.774	388.005
77							
Cambodia							
Thailand							
Myanmar							
Malaysia							
Laos PDR							
Viet Nam							
ROW							

78							
Cambodia	-	-	-	-	-	-	-
Thailand	0.038	-	0.063	0.106	0.017	3.392	3.616
Myanmar	-	0.020	-	-	-	-	0.020
Malaysia	-	9.358	0.442	-	-	3.521	13.321
Laos PDR	-	0.152	-	-	-	-	0.152
Viet Nam	0.010	1.234	-	2.049	0.008	-	3.301
ROW	0.048	10.764	0.505	2.155	0.025	6.913	20.410
79							
Cambodia	-	-	-	-	-	-	-
Thailand	0.441	-	1.692	4.876	12.131	8.924	28.064
Myanmar	-	-	-	-	-	-	-
Malaysia	-	3.191	0.180	-	-	1.483	4.854
Laos PDR	-	0.028	-	-	-	-	0.028
Viet Nam	0.410	3.633	-	0.291	0.236	-	4.570
ROW	0.851	6.852	1.872	5.167	12.367	10.407	37.516
80							
Cambodia	-	-	-	-	-	-	-
Thailand	0.011	-	-	4.882	0.089	3.417	8.399
Myanmar	-	-	-	0.419	-	-	0.419
Malaysia	-	6.451	0.078	-	-	12.808	19.337
Laos PDR	-	-	-	-	-	0.891	0.891
Viet Nam	0.276	0.007	-	24.034	0.020	-	24.337
ROW	0.287	6.458	0.078	29.335	0.109	17.116	53.383
81							
Cambodia	-	-	-	-	-	-	-
Thailand	0.004	-	0.009	0.028	0.072	0.075	0.188
Myanmar	-	-	-	-	-	-	-
Malaysia	-	0.362	-	-	-	-	0.362
Laos PDR	-	-	-	-	-	-	-
Viet Nam	-	3.458	-	0.130	-	-	3.588
ROW	0.004	3.820	0.009	0.158	0.072	0.075	4.138
82							
Cambodia	-	-	-	0.014	-	-	0.014
Thailand	3.510	-	3.058	8.724	7.783	9.919	32.994
Myanmar	-	0.008	-	-	-	-	0.008
Malaysia	0.012	36.700	0.311	-	-	13.744	50.767
Laos PDR	-	0.019	-	-	-	-	0.019
Viet Nam	0.130	1.896	-	3.699	0.038	-	5.763
ROW	3.652	38.623	3.369	12.437	7.821	23.663	89.565
83							
Cambodia	-	-	-	0.001	-	-	0.001
Thailand	5.549	-	7.914	53.972	6.485	40.138	114.058
Myanmar	-	0.026	-	0.076	-	-	0.102
Malaysia	1.100	16.990	0.124	-	-	17.980	36.194
Laos PDR	-	0.021	-	-	-	-	0.021
Viet Nam	3.277	13.402	0.094	2.437	0.428	-	19.638
ROW	9.926	30.439	8.132	56.486	6.913	58.118	170.014

84							
Cambodia	-	132.523	-	0.997	0.004	0.748	134.272
Thailand	198.396	-	104.602	2,307.9	247.659	899.244	3,757.8
Myanmar	0.001	0.234	-	0.078	-	-	0.313
Malaysia	10.380	2,330.2	23.764	-	2.440	326.863	2,693.6
Laos PDR	0.022	12.003	-	0.005	-	0.954	12.984
Viet Nam	31.592	300.805	1.813	115.4	8.030	-	457.685
ROW	240.391	2,775.7	130.179	2,424.4	258.133	1,227.8	7,056.7
85							
Cambodia	-	0.580	-	0.547	0.451	0.689	2.267
Thailand	301.136	-	106.998	1,674.4	76.846	349.682	2,509.0
Myanmar	-	0.067	-	2.067	-	-	2.134
Malaysia	5.668	2,313.7	10.872	-	3.175	373.113	2,706.6
Laos PDR	0.278	19.211	-	0.006	-	1.892	21.387
Viet Nam	75.417	572.435	3.383	233.012	18.208	-	902.455
ROW	382.499	2,906.0	121.253	1,910.0	98.680	725.376	6,143.9
86							
Cambodia	-	0.824	-	-	-	0.007	0.831
Thailand	0.079	-	0.167	1.680	0.384	0.046	2.356
Myanmar	-	0.002	-	1.241	-	-	1.243
Malaysia	0.007	15.824	2.416	-	-	2.036	20.283
Laos PDR	-	0.114	-	-	-	-	0.114
Viet Nam	0.193	0.406	-	2.580	-	-	3.179
ROW	0.279	17.170	2.583	5.501	0.384	2.089	28.006
87							
Cambodia	-	5.263	-	0.755	-	7.047	13.065
Thailand	171.400	-	107.468	1,161.6	271.139	379.060	2,090.6
Myanmar	-	0.059	-	-	-	-	0.059
Malaysia	6.643	194.961	4.646	-	0.007	11.012	217.2
Laos PDR	0.017	7.714	-	-	-	0.164	7.895
Viet Nam	28.761	112.710	0.413	34.0	25.292	-	201.273

88							
Cambodia	-	0.003	-	-	-	0.006	0.009
Thailand	-	-	0.044	27.159	0.747	0.179	28.129
Myanmar	-	-	-	0.005	-	-	0.005
Malaysia	0.025	12.754	0.358	-	0.081	1.699	14.917
Laos PDR	-	-	-	0.004	-	-	0.004
Viet Nam	0.098	0.046	-	0.062	0.092	-	0.298
ROW	0.123	12.803	0.402	27.230	0.920	1.884	43.362
89							
Cambodia	-	0.130	-	-	-	3.140	3.270
Thailand	0.245	-	0.912	287.840	0.226	0.335	289.558
Myanmar	-	-	-	-	-	-	-
Malaysia	-	157.581	0.025	-	-	277.256	434.862
Laos PDR	-	0.001	-	-	-	-	0.001
Viet Nam	2.339	1.165	-	1.358	-	-	4.862
ROW	2.584	158.877	0.937	289.198	0.226	280.731	732.553

90							
Cambodia	-	0.040	-	0.004	-	0.117	0.161
Thailand	10.729	-	6.645	105.192	7.469	66.400	196.435
Myanmar	0.019	1.437	-	-	-	-	1.456
Malaysia	0.684	418.070	2.536	-	0.756	37.666	459.712
Laos PDR	-	1.517	-	0.013	-	0.024	1.554
Viet Nam	5.052	162.253	1.052	35.939	4.844	-	209.140
ROW	16.484	583.317	10.233	141.148	13.069	104.207	868.458
91							
Cambodia	-	-	-	-	-	-	-
Thailand	0.248	-	0.201	1.046	0.022	0.299	1.816
Myanmar	-	-	-	-	-	-	-
Malaysia	0.050	1.618	-	-	-	0.175	1.843
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.026	12.436	-	0.030	0.004	-	12.496
ROW	0.324	14.054	0.201	1.076	0.026	0.474	16.155
92							
Cambodia	-	-	-	0.020	-	-	0.020
Thailand	-	-	0.019	0.102	0.380	0.007	0.508
Myanmar	-	-	-	-	-	-	-
Malaysia	0.141	0.499	0.073	-	-	3.073	3.786
Laos PDR	-	0.380	-	-	-	-	0.380
Viet Nam	-	0.177	-	0.002	-	-	0.179
ROW	0.141	1.056	0.092	0.124	0.380	3.080	4.873
93							
Cambodia	-	-	-	-	-	-	-
Thailand	-	-	-	0.825	0.010	0.002	0.837
Myanmar	-	-	-	-	-	-	-
Malaysia	0.025	-	-	-	0.829	0.072	0.926
Laos PDR	-	-	-	-	-	-	-
Viet Nam	0.070	-	-	-	-	-	0.070
ROW	0.095	-	-	0.825	0.839	0.074	1.833
94							
Cambodia	-	0.004	-	1.138	-	0.207	1.349
Thailand	6.336	-	8.594	32.726	8.240	24.478	80.374
Myanmar	-	2.363	-	0.065	-	-	2.428
Malaysia	1.697	21.274	1.788	-	0.029	19.845	44.633
Laos PDR	-	0.704	-	0.004	-	0.005	0.713
Viet Nam	9.706	22.494	8.162	45.173	6.342	-	91.877
ROW	17.739	46.839	18.544	79.106	14.611	44.535	221.374
95							
Cambodia	-	0.066	-	-	-	-	0.066
Thailand	0.706	-	2.939	5.051	1.133	2.809	12.638
Myanmar	-	-	-	-	-	-	-
Malaysia	1.073	3.397	0.312	-	0.015	2.770	7.567
Laos PDR	-	0.173	-	-	-	-	0.173
Viet Nam	0.800	2.750	0.003	4.395	0.042	-	7.990
ROW	2.579	6.386	3.254	9.446	1.190	5.579	28.434

96							
Cambodia	-	0.006	-	0.130	-	0.003	0.139
Thailand	5.209	-	10.092	8.610	3.980	10.073	37.964
Myanmar	-	0.010	-	0.437	-	-	0.447
Malaysia	3.055	6.919	0.198	-	-	5.453	15.625
Laos PDR	-	0.012	-	-	-	0.007	0.019
Viet Nam	16.071	16.270	0.264	7.466	0.754	-	40.825
ROW	24.335	23.217	10.554	16.643	4.734	15.536	95.019
97							
Cambodia	-	0.020	-	-	-	0.010	0.030
Thailand	0.036	-	0.006	0.120	0.007	0.152	0.321
Myanmar	-	0.056	-	0.008	-	-	0.064
Malaysia	0.103	0.092	-	-	-	0.012	0.207
Laos PDR	-	-	-	-	-	-	-
Viet Nam	-	0.051	-	0.080	-	-	0.131
ROW	0.139	0.219	0.006	0.208	0.007	0.174	0.753
98							
Cambodia							
Thailand							
Myanmar							
Malaysia							
Laos PDR							
Viet Nam							
ROW							
99							
Cambodia	-	0.039	0.002	0.028	0.026	0.436	0.531
Thailand	-	-	-	-	-	-	-
Myanmar	-	-	-	0.688	-	-	0.688
Malaysia	2.012	43.588	6.883	-	0.060	26.432	78.975
Laos PDR	0.063	-	-	0.011	-	0.003	0.077
Viet Nam	0.242	0.061	0.024	7.324	1.976	-	9.627
ROW	2.317	43.688	6.909	8.051	2.062	26.871	89.898

Appendix 2: Harmonized System Code 2 digits

HS	Description
01	Live animals
02	Meat and edible meat offal
03	Fish, crustaceans, mollusc's, aquatic invertebrates nes
04	Dairy products, eggs, honey, edible animal product nes
05	Products of animal origin, nes
06	Live trees, plants, bulbs, roots, cut flowers etc
07	Edible vegetables and certain roots and tubers
08	Edible fruit, nuts, peel of citrus fruit, melons
09	Coffee, tea, mate and spices
10	Cereals
11	Milling products, malt, starches, inulin, wheat gluten
12	Oil seed, oleaginous fruits, grain, seed, fruit, etc, nes
13	Lac, gums, resins, vegetable saps and extracts nes
14	Vegetable plaiting materials, vegetable products nes
15	Animal,vegetable fats and oils, cleavage products, etc
16	Meat, fish and seafood food preparations nes
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations

HS	Description
19	Cereal, flour, starch, milk preparations and products
20	Vegetable, fruit, nut, etc food preparations
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues, wastes of food industry, animal fodder
24	Tobacco and manufactured tobacco substitutes
25	Salt, sulfur, earth, stone, plaster, lime and cement
26	Ores, slag and ash
27	Mineral fuels, oils, distillation products, etc
28	Inorganic chemicals, precious metal compound, isotopes
29	Organic chemicals
30	Pharmaceutical products
31	Fertilizers
32	Tanning, dyeing extracts, tannins, derives,pigments etc
33	Essential oils, perfumes, cosmetics, toiletries
34	Soaps, lubricants, waxes, candles, modeling pastes
35	Albuminoids, modified starches, glues, enzymes
36	Explosives, pyrotechnics, matches, pyrophorics, etc

HS	Description
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
41	Raw hides and skins (other than fur skins) and leather
42	Articles of leather, animal gut, harness, travel goods
43	Fur skins and artificial fur, manufactures thereof
44	Wood and articles of wood, wood charcoal
45	Cork and articles of cork
46	Manufactures of plaiting material, basketwork, etc.
47	Pulp of wood, fibrous celluloid material, waste etc
48	Paper and paperboard, articles of pulp, paper and board
49	Printed books, newspapers, pictures etc
50	Silk
51	Wool, animal hair, horsehair yarn and fabric thereof
52	Cotton
53	Vegetable textile fibers nes, paper yarn, woven fabric
54	Man made filaments
55	Man made staple fibers

HS	Description
56	Wadding, felt, non-wovens, yarns, twine, cordage, etc
57	Carpets and other textile floor coverings
58	Special woven or tufted fabric, lace, tapestry etc
59	Impregnated, coated or laminated textile fabric
60	Knitted or crocheted fabric
61	Articles of apparel, accessories, knit or crochet
62	Articles of apparel, accessories, not knit or crochet
63	Other made textile articles, sets, worn clothing etc
64	Footwear, gaiters and the like, parts thereof
65	Headgear and parts thereof
66	Umbrellas, walking-sticks, seat-sticks, whips, etc
67	Bird skin, feathers, artificial flowers, human hair
68	Stone, plaster, cement, asbestos, mica, etc articles
69	Ceramic products
70	Glass and glassware
71	Pearls, precious stones, metals, coins, etc
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof

HS	Description
75	Nickel and articles thereof
76	Aluminum and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals, cermets, articles thereof
82	Tools, implements, cutlery, etc of base metal
83	Miscellaneous articles of base metal
84	Machinery, nuclear reactors, boilers, etc
85	Electrical, electronic equipment
86	Railway, tramway locomotives, rolling stock, equipment
87	Vehicles other than railway, tramway

HS	Description
88	Aircraft, spacecraft, and parts thereof
89	Ships, boats and other floating structures
90	Optical, photo, technical, medical, etc apparatus
91	Clocks and watches and parts thereof
92	Musical instruments, parts and accessories
93	Arms and ammunition, parts and accessories thereof
94	Furniture, lighting, signs, prefabricated buildings
95	Toys, games, sports requisites
96	Miscellaneous manufactured articles
97	Works of art, collectors pieces and antiques
99	Commodities not elsewhere specified

Source: Thai customs

Appendix 3: Aggregated commodities

No.	Aggregated commodities	Original GTAP commodities
1	Grains	Paddy rice, Wheat, Cereal grains nec, Oil seeds, Sugar cane, Sugar beet, Processed rice
2	Vegetables and Fruit	Vegetables, Fruit, Nuts
3	Processed Food	Vegetable oils and fats, Dairy products, Sugar, Food products nec, Beverages and tobacco products
4	Textiles and Clothing	Textiles, Wearing apparel
5	Light Manufacturing	Leather products, Wood products, Paper products, Publishing, Metal products, Motor vehicles and parts, Transport equipment nec, Manufactures nec
6	Heavy Manufacturing	Petroleum, Coal products, Chemical, Rubber, Plastic prods, Mineral products nec, Ferrous metals, Metals nec, Electronic equipment, Machinery and equipment nec
7	Sea Transport	Sea transport
8	Road Transport	road, rail ; pipelines, auxiliary transport activities; travel agencies
9	The Others	Plant-based fibers, Crops nec, Cattle, Sheep, Goats, Horses, Animal products nec, Raw milk, Wool, Silk-worm cocoons, Meat : Cattle, sheep, Goats Horse, Meat products nec, Forestry, Fishing, Coal, Oil, Gas, Minerals nec, Electricity, Gas manufacture, distribution, Water, Construction, Transport nec, Air transport, Trade, Communication, Financial services nec, Insurance, Business services nec, Recreation and other services, Public Administration /Defence/Health/Education, Dwellings

Appendix 4: Tariff Equivalent for value of time per day

	Grains	Vegetables and Fruit	Processed Food	Textiles and Clothing	Light Manufacturing	Heavy Manufacturing	Sea Transport	Road Transport	The Others
Thailand	0.85	0.66	1.01	0.82	1.04	1.13	-	-	-
Vietnam	0.14	0.38	1.32	0.84	1.08	1.25	-	-	-
Malaysia	0.26	0.69	1.68	0.89	1.18	0.84	-	-	-
Laos	0.06	0.05	1.14	0.97	1.41	1.44	-	-	-
Cambodia	0.05	0.79	0.95	0.85	1.59	1.38	-	-	-
Myanmar	0.06	0.23	1.08	0.74	1.46	1.36	-	-	-

Row : Importing countries/regions

Column : Traded commodities

Note : Tariff equivalents of Sea Transportation, Road Transportation and The others are set as zero because of a lack of data

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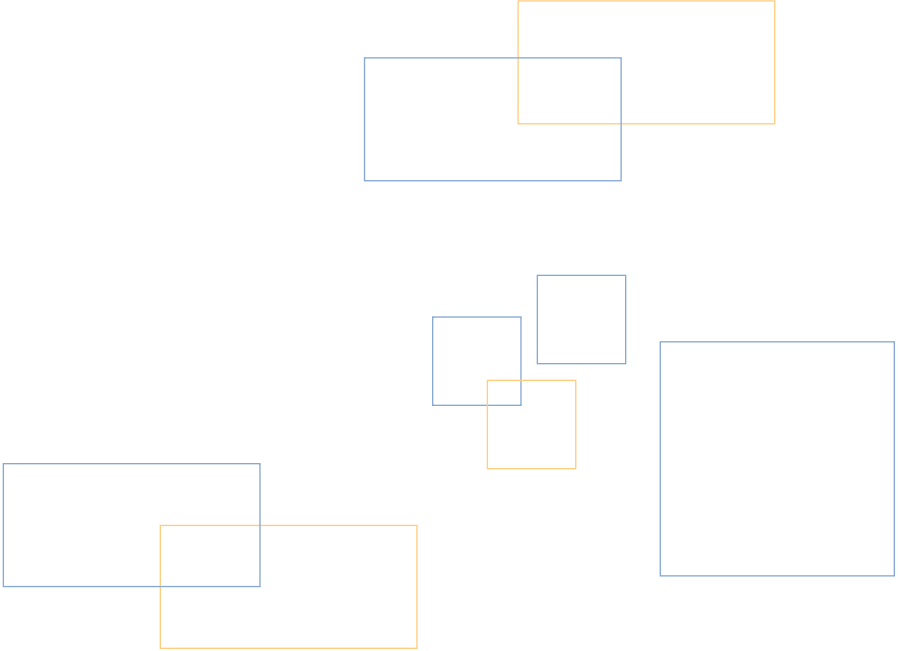

About the Report

This report highlights the current state of trade facilitation in the ASEAN member states and examines the effects of non-cooperation to consumers. It further provides a critical assessment of the obstacles to trade including shipping time and costs, transport infrastructure, logistical services, and delivery reliability.

Analysis bases on interviews of key public and private stakeholders as well as statistical data provides a clear picture of what is needed to improve trade facilitation in ASEAN and how consumers would benefit from a more efficient trading system.

This report provides policy makers, investors, and other stakeholders policy a clear picture of the current trading environment and gives recommendations that will ensure ASEAN countries can take advantage of the single market under the ASEAN Economic Community.