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The India–Myanmar–Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities

Integrative Report

Economic Research Institute for ASEAN and East Asia

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The India–Myanmar–Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities-Integrative Report

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Executive Summary

The Trilateral Highway (TLH) establishes connectivity between India, Myanmar, and Thailand and is linked with the connectivity plans of the Association of Southeast Asian Nations (ASEAN). The Trilateral Highway is still a project under construction, and therefore its contribution to the economic growth and development of the region has not yet reached its potential. The proposed extension of TLH to Lao PDR, Cambodia, and Viet Nam is in fulfillment of this objective.

Mandated by the ASEAN–India Summit Meeting of 2018 and commissioned by the Government of India, the Economic Research Institute for ASEAN and East Asia (ERIA) commenced a study in January 2019 on the feasibility of establishing a seamless, efficient, and end-to-end transportation corridor along the existing Trilateral Highway and its extension towards Cambodia, Lao PDR, and Viet Nam. The study has used findings from commissioned country papers and drawn on results from existing studies on connectivity between ASEAN and India, importantly, the Comprehensive Asia Development Plan (CADP) (ERIA, 2011). The first phase of the study is complete and it offers physical, institutional, and economic pathways, along with policy recommendations for the development of TLH and its eastwards extension.

Greater connectivity between India and ASEAN has long been both an economic and strategic objective for the ASEAN–India partnership. Based on the Thai proposal at the 16th ASEAN Highways Sub-Working Group Meeting in August 2018 and other existing initiatives, such as the Greater Mekong Sub-region (GMS), Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, Master Plan on ASEAN Connectivity (MPAC) 2025, and the ASEAN Highway Network, as well as the recognition that the connectivity to international ports is an important factor for the development of economic corridors, this study has considered the original alignment of the TLH from Moreh – Tamu – Kalewa – Monywa – Mandalay – Nay Pyi Taw – Bago – Myawaddy – Mae Sot with two possible routes for eastward extension:

- the northern route from Meiktila in Myanmar to Ha Noi and Hai Phong in Viet Nam via the Myanmar–Lao PDR Friendship Bridge
- the Southern route from Mae Sot to Aranyaprathet via Bangkok in Thailand to Phnom Penh/Sihanoukville – Bavet in Cambodia and Moc Bai − Ho Chi Minh City − Vung Tau in Viet Nam

Except for one small section between Xieng Kok and Luang Namtha via Muang Sing in the Lao PDR, all sections of the suggested northern route are already designated as parts of the Asian Development Bank (ADB), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and Master Plan on ASEAN Connectivity (MPAC) 2025 transport corridor projects. All sections of the southern route of the eastward extension overlap with the East West Economic Corridor, North South Economic Corridor, and the Southern Economic Corridor of ADB.

The eastward extension plans therefore imply close cooperation with international projects owned and executed by ADB, UNESCAP, and ASEAN.

Since 2011, development of the TLH, especially in Myanmar has accelerated. Comparatively, institutional arrangements for trade and transport facilitation have been slow. There is great scope for expansion of border trade between India and Myanmar and along the TLH given that larger trade and economic complementarities exist amongst countries along the southern route. Myanmar's border trade with India however remains small when compared to its trade with Thailand and China, the latter being possible due to improved road infrastructure. India's trade relationship with Cambodia and the Lao PDR remains unexploited, although trade with Vietnam has grown during the last decade. Thailand shares strong trade connectivity with India in the manufacturing sector. The quality or accuracy of border trade statistics is important to enable evidence-based policy making. Border trade potential between India and Myanmar, and with ASEAN is yet to be unlocked. Myanmar is the gateway to and from ASEAN. Completion of the TLH is expected to generate new demand for trade through the land border, particularly via Moreh and Tamu.

A major part of the Trilateral Highway is the road network in Myanmar. Many of the original alignments of the TLH have been recently completed or upgraded — the bypass road connecting Myawaddy and Kawkaleik (Thailand) and the second friendship bridge connecting Myawaddy and Mae Sot being the most important. Ongoing upgradation and repair of roads between Kalewa (India) and Monywa (Myanmar), the new Bago bridge (aided by Japan), and construction of an arterial road connecting Bago and Kyaikto (by ADB) are significant indicators of progress in the TLH project. Matching the urgency for replacement of 69 bridges along the Tamu–Kyigone–Kalewa road and upgrading of the Thaton–Eindu road is required, both being subject to prolonged litigation and disputes, respectively.

Significant security issues remain unresolved in Myanmar, with a lack of bilateral agreements for cross-border transport amongst Myanmar, Lao PDR, and Viet Nam along the northern route. Rugged mountainous sections between Tay Trang and Na Thin in Viet Nam are also a drawback on this route.

In comparison, the southern extension route has been better developed as part of the Greater Mekong Subregion (GMS) economic corridors, including the already well-developed road networks in Thailand and the construction of the Tsubasa Bridge over the Mekong River in Neak Loung, Cambodia. In terms of physical infrastructure, the southern route will not require a large amount of additional investment. Large sections of physical infrastructure in Myanmar however will require financial assistance from partner countries for construction/upgradation and maintenance.

Progress in making institutional arrangements will be equally important. The TLH project could seek policy lessons from the execution of the GMS Cross Border Transport Agreement (GMS–CBTA). It is based on the economic complementarities of goods and services and security

concerns amongst member countries and is being implemented through a hybrid of multilateral and bilateral cross-border transport arrangements.

The TLH, including its eastward extensions, would primarily be a transport corridor as vibrant economic agglomerations are mainly at one end, such as Bangkok, Ho Chi Minh City, and Ha Noi. In the current alignment, Myanmar occupies the longest length of TLH and is the largest beneficiary of the development of the TLH and its eastward extension. Thailand is the second beneficiary. Impacts on India are positive with greater scope for growth in the North Eastern Region. However, from an inclusive growth perspective, both real and potential impacts on India and member countries are important as infrastructure and connectivity provide longer-term development and returns. While different levels of impact along the TLH are normal, a seamless transport corridor provides a real opportunity for setting up processes and mechanisms that offer the most towards the reconciliation of the costs and benefits. It will be the bearer of India's two-way engagement with current and future economic potentials of the region.

Enlarging the economic impacts of the TLH and its eastward extension implies the importance of implementing policies beyond the scope of infrastructure development and institutional arrangements for cross-border transport facilitation. These include industrial policy to promote specific industries, spatial development policy to upgrade selected cities as business and logistic hubs with effective connectivity to the surrounding regions, and domestic security policy to improve security conditions as an integral element of business environments and movement of people and goods. The TLH and its eastward extension is therefore an opportunity to remove bottlenecks in the development strategy of India and ASEAN. Step-by-step implementation and coordination of a range of policies is the key. The TLH and the eastward extension can serve as a facilitating framework for this process.

The study provides specific recommendation along these lines which can be the basis for policy coordination and project implementation in TLH and its eastward extension:

- Complete ongoing construction or upgrading projects for transport infrastructure along the original alignment of the TLH according to the schedule.
- Resume projects stalled by litigations and disputes immediately (e.g. bridges along the Tamu–Kyigone–Kalewa road, upgrading of the Thaton–Eindu road).
- Move forward infrastructure projects that are in the preparatory stages (e.g. the arterial highway between Bago and Kyaikto, the Sittuang bridge, and the Yangon–Mandalay Expressway – one of the initial pipeline projects of ASEAN).
- Set up National Transport Facilitation Committees (NTFCs) of member countries to facilitate cross-border transportation and trade.
- Consider multiple options and hybrid models for transport facilitation arrangements, using a mix of multilateral and bilateral arrangements.
- Formalise border administration, facilitating movement of goods and people through better border administration.

- Develop logistics infrastructure along the TLH and spatial development of logistics hubs such as Guwahati and Mandalay.
- Create a mechanism to ensure sustainable funding sources for the construction and maintenance of road infrastructure.
- Connect the TLH effectively with other transport networks of ports, railways, airports, dry ports, and depots.
- Enhance collaboration with the private sector, logistics service providers, and local governments.
- Support small and medium-sized enterprises in the border areas to meet the new business opportunities to be opened by the TLH.
- Development and coordination of the eastward extension plan.
- Set up a coordination cum facilitation body of all member countries and multilateral agencies to facilitate the TLH and its eastward extension.

Repeated natural disasters and the ongoing COVID-19 pandemic have reminded the world of the vulnerability of supply chains and risks to connectivity. In this context, the potential of the TLH lies in providing the resiliency to connectivity and supply chains, once it is well connected to other road networks, such as the GMS economic corridors and the networks of other modes of transportation, such as railways, waterways, maritime, and air.

In the face of the COVID 19 crisis, the ASEAN Economic Ministers have agreed to resolve to 'strengthen a long-term supply chain resilience and sustainability, including through better transparency, agility, diversification and, in particular, the implementation of the Master Plan on ASEAN Connectivity (MPAC) 2025'. India has consistently maintained that connectivity with ASEAN is central to its Act East Policy. The study on TLH and its eastward extension to Cambodia, Lao PDR, and Viet Nam is in tune with the ASEAN Economic Ministers' resolution to reconsider the resilience and sustainability of connectivity, instead of focusing too much on the efficiency and the effectiveness of the connectivity, in which the economic aspect is the major criterion for evaluation.

The need for seamless physical connectivity has never been felt before like it is being felt now. The study on the Trilateral Highway and its eastward extension fulfils this current need, and also lays down pathways for medium- and longer-term integrated connectivity solutions between India and ASEAN.

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List of Abbreviations

ACMECS	Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy
ADB	Asian Development Bank
ADBI	Asian Development Bank Institute
AEP	Act East Policy (India)
AFAFGIT	ASEAN Framework Agreement on Facilitation of Goods in Transit
AFAFIST	ASEAN Framework Agreement on the Facilitation of Inter-State Transport
AFAMT	ASEAN Framework Agreement on Multimodel Transport
AH	Asian Highway
AHN	ASEAN Highway Network
AIC at RIS	ASEAN-India Centre at RIS
ASEAN	Association of Southeast Asian Nations
ATM	Automatic Teller Machine
BBIN	Bangladesh, Bhutan, India, and Nepal
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BOT	Built-Operate-Transfer
BRO	Border Roads Organisation
BTA	Border Trade Agreement (India and Myanmar)
CBTA	Cross Border Transport Agreement
CLMV	Cambodia, Lao PDR, Myanmar, and Vietnam
CVD	Countervailing Duty (India)
DFQF	Duty-Free Quota-Free (India)
DGFT	Director General of Foreign Trade (India)
DoH	Department of Highway (Thailand)
EDI	Electronic Data Interchange
EH-CBTA	Early Heavest of the CBTA
EPC	Engineering Procurement Construction (India)
ERIA	Economic Research Institute for ASEAN and East Asia
EWEC	East-West Economic Corridor
FSSAI	Food Safety and Standards Authority of India
FTA	Free Trade Agreement

GMS	Greater Mekong Subregion
GR	Guarantee Receipt (India)
GSM	Geographical Simulation Model
ICP	Integrated Check Post (India)
IDE-JETRO	Institute of Developing Economies, Japan External Trade Organization
IEC	Importer Exporter Certificate (India)
II-CBTA	Initial Implementation of the CBTA
IMF	International Monetary Fund
IMFR	India-Myanmar Friendship Road
JICA	Japan International Cooperation Agency
KNU	Karen National Union
L/C	Letter of Credit
LCS	Land Customs Station (India)
LDC	Least Developed Country
LoA	Letter of Agreement
LPAI	Land Port Authority of India
LSPs	Logistic Services Providers
MDoNER	Ministry of Development of North Eastern Region (India)
MFN	Most Favoured Nation
MMK	Myanmar Kyat
MoRTH	Ministry of Road Transport and Highways (India)
MoU	Memorandum of Understanding
MPAC	Master Plan on ASEAN Connectivity
MUDRA	Micro Units Development and Refinance Agency (India)
MVA	Motor Vehicles Agreement
NABL	National Accreditation Board for Testing and Calibration Laboratories (India)
NCTF	National Committee for Trade Facilitation (India)
NEDA	Neighbouring Countries Economic Development Cooperation Agency (Thailand)
NER	North Eastern Region (India)
NHAI	National Highway Authority of India
NHIDCL	National Highway and Infrastructure Development Corporation Limited (India)
NPCC	National Project Construction and Cooperation (India)
NSEC	North-South Economic Corridor

ODA	Official Development Assistance
PDR	People's Democratic Republic (Lao PDR)
RCEP	Regional Comprehensive Economic Partnership
RFID	Radio Frequency Identification
RIS	Research and Information System for Developing Countries
SAARC	South Asian Association for Regional Cooperation
SBI	State Bank of India
SEC	Southern Economic Corridor
SEZ	Special Economic Zone
SOP	Standard Operating Procedure
TAR	Trans-Asian Railway
THB	Thai Baht
TIR	*Transports Internationaux Routiers* (International Road Transport)
TLH	Trilateral Highway
UBI	United Bank of India
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USD	United States Dollar
VND	Vietnamese Dong
WHO	World Health Organization
WTO	World Trade Organization

Chapter 1

Introduction

1.1. Background

The establishment of the Association of Southeast Asian Nations (ASEAN) Economic Community (AEC) at the end of 2015 was a great impetus to regionalism, connectivity, and freer trade and investment regimes. The dialogue partners of ASEAN found a greater attraction with ASEAN and looked forwards to increased trade and economic cooperation with the AEC. These regional gains were soon overshadowed by rising and thickening borders in Europe and North America, affecting the movement of goods and services, and people. The year 2016 witnessed two major events against the free trade regime in the world. The United Kingdom's decision to exit the European Union was announced in 2015 − and has since been completed − put a question mark on the global pursuit of free trade. The election of Donald Trump in 2016 as president of the United States (US) and the 'America First' policy of the Trump administration has presented strong headwinds to the world trade regime, the most significant of which are the withdrawal of the US from the Trans-Pacific Partnership agreement in 2017, the ongoing trade war with China triggered in March 2018, and the crisis of the World Trade Organization's Appellate Body that became apparent in December 2019. Closer to home, India announced their withdrawal from negotiations for the Regional Comprehensive Economic Partnership in November 2019, leaving the remaining 15 member countries to work on the conclusion of the partnership.

Since the beginning of 2020, the outbreak of the coronavirus disease (COVID-19), which originated in Wuhan, China, has threatened global connectivity and supply chains as we have known. The global order, which was marked by the interdependence of nations, international trade, and the cross-border movement of people, has come to a grinding halt. What started as disruptions in, and the breakdown of, supply chains soon became restrictions on the cross-border movement of people. These necessary protective measures are severely affecting economic activity. In the latest *World Economic Outlook* (WEO), the International Monetary Fund (IMF) describes 'this year the global economy will experience its worst recession since the Great Depression, surpassing that seen during the global financial crisis a decade ago' (IMF, 2020, p.v).

The IMF revised its projection on the growth rate of the world in 2020 from the original figure of 3.4% in October 2019 to –3.0% in the latest WEO released in April 2020 (Table 1.1). All countries and groups of countries are projected to suffer from severe adverse impacts. Emerging and developing Asian countries are no exception, but the negative shocks are relatively moderate. In ASEAN, Thailand and Cambodia are projected to contract sharply, probably because of their relatively high dependence on the US and European countries, which are hardest hit by the pandemic.

Table 1.1. IMF's Projection on the Impacts of the COVID-19 Pandemic

	2019				Projections 2020					
	Growth Rate		CA/GDP		Growth Rate			CA/GDP		
	Oct-19	Apr-20	Oct-19	Apr-20	Oct-19	Apr-20	Change	Oct-19	Apr-20	Change
World	**3.0**	**2.9**	**0.3**	**0.4**	**3.4**	**-3.0**	**-6.4**	**0.1**	**-0.4**	**-0.5**
Advanced Economies	**1.7**	**1.7**	**0.6**	**0.7**	**1.7**	**-6.1**	**-7.8**	**0.5**	**0.1**	**-0.4**
United States	2.4	2.3	-2.5	-2.3	2.1	-5.9	-8.0	-2.5	-2.6	-0.1
Euro Area	1.2	1.2	2.8	2.7	1.4	-7.5	-8.9	2.7	2.6	-0.1
Japan	0.9	0.7	3.3	3.6	0.5	-5.2	-5.7	3.3	1.7	-1.6
Emerging & Developing Asia	**5.9**	**5.5**	**0.4**	**0.6**	**6.0**	**1.0**	**-5.0**	**0.2**	**0.1**	**-0.1**
China	6.1	6.1	1.0	1.0	5.8	1.2	-4.6	0.9	0.5	-0.4
India	6.1	4.2	-2.0	-1.1	7.0	1.9	-5.1	-2.3	-0.6	1.7
Myanmar	6.2	6.5	-4.8	-2.0	6.3	1.8	-4.5	-4.9	-4.7	0.2
Thailand	2.9	2.4	6.0	6.9	3.0	-6.7	-9.7	5.4	5.2	-0.2
Lao PDR	6.4	4.7	-12.1	-7.2	6.5	0.7	-5.8	-12.0	-10.9	1.1
Cambodia	7.0	7.0	-12.5	-12.5	6.8	-1.6	-8.4	-12.3	-22.2	-9.9
Viet Nam	6.5	7.0	2.2	4.0	6.5	2.7	-3.8	1.9	5.2	3.3
Emerging & Developing Europe	**1.8**	**2.1**	**1.6**	**1.4**	**2.5**	**-5.2**	**-7.7**	**0.6**	**-0.4**	**-1.0**
Latin America & the Caribbean	**0.2**	**0.1**	**-1.6**	**-1.7**	**1.8**	**-5.2**	**-7.0**	**-1.5**	**-1.5**	**0.0**
Middle East & Central Asia	**0.9**	**1.2**	**-0.4**	**0.4**	**2.9**	**-2.8**	**-5.7**	**-1.4**	**-5.7**	**-4.3**
Sub-Saharan Africa	**3.2**	**3.1**	**-3.6**	**-4.0**	**3.6**	**-1.6**	**-5.2**	**-3.8**	**-4.7**	**-0.9**

CA/GDP = current account balance as percentage of gross domestic product, IMF = International Monetary Fund.
Note: Oct-19 and Apr-20 columns present the estimates or projections in October 2019 and April 2020 issues of the World Economic Outlook, respectively. The Change columns show the difference between the projections in October 2019 and April 2020, which can be interpreted as the IMF's projection on the impacts of the COVID-19 pandemic.
Source: Compiled based on IMF (2019, 2020).

With COVID-19 declared a global pandemic, the ASEAN Economic Ministers recognised 'the adverse impacts of the COVID-19 outbreak on the economy, particularly including but not limited to the travel and tourism, manufacturing, retail and other services sectors as well as the disruption of supply chains and the financial markets,' and have agreed to resolve to 'strengthen a long-term supply chain resilience and sustainability, including through better transparency, agility, diversification and, in particular, the implementation of the Master Plan on ASEAN Connectivity (MPAC) 2025'.[1] The world is still in the middle of the turbulence, and at the time of writing, there is no single expert opinion to forecast the future course of the pandemic. Connectivity is now at risk like never before. However, it is also important to remind about the prosperity that connectivity has brought to the world. As the ASEAN Economic Ministers emphasised, it is time to reconsider the resilience and the sustainability of connectivity, instead of focusing too much on the efficiency and the effectiveness of connectivity, in which the economic aspect is the major criterion for evaluation. The assurance of physical connectivity has never been tested before like now. The study on the Trilateral Highway (TLH) and its eastward extension is salutary to increased connectivity between India and ASEAN.

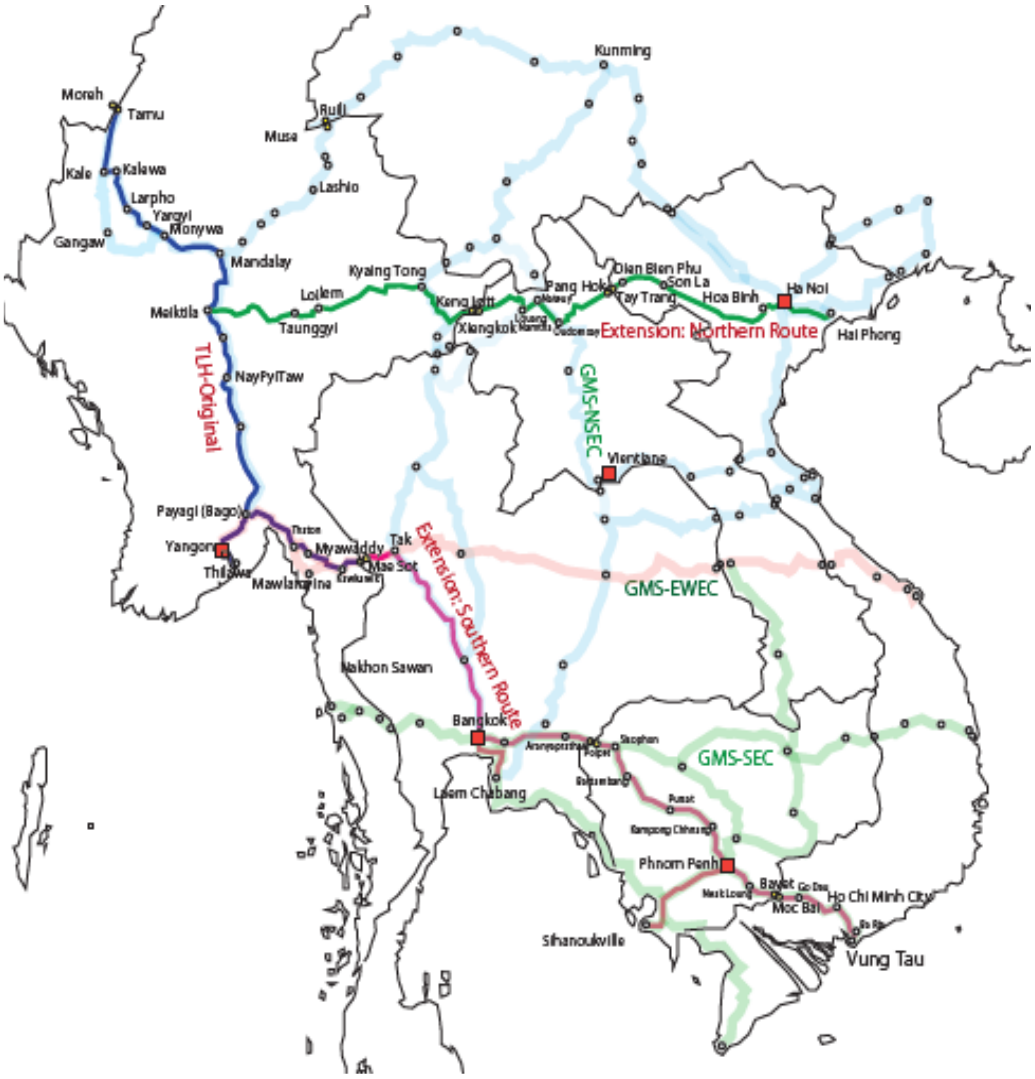
1.2. The Trilateral Highway and its Eastward Extension

Greater connectivity between India and ASEAN has long been both economic and strategic objectives for the ASEAN–India partnership. The Trilateral Highway (TLH) was first conceived at the Trilateral Ministerial Meeting on Transport Linkages in April 2002, where India, Myanmar, and Thailand agreed to make all efforts to establish trilateral connectivity by 2016. Along the TLH, 'there are two border crossings, four customs check points, three international time zones, three customs EDI systems, two different vehicle driving standards and three different motor vehicle laws. Challenge is to reach convergence in standards and procedures along the corridor' (AIC–RIS, 2015: 70). The Chair's statements of the ASEAN–India summits in 2010 and 2012 further acknowledged the importance of linking the TLH with ASEAN's connectivity plans, as well as its extension to the Lao People's Democratic Republic (Lao PDR), Cambodia, and Viet Nam.

[1] 'Strengthening ASEAN'S Economic Resilience in Response to The Outbreak of The Coronavirus Disease (COVID-19)', a statement released at the 26th ASEAN Economic Ministers' Retreat, 10 March 2020, Da Nang, Viet Nam.

Although significant progress has been made in the development of the TLH, particularly since 2011, it is still a project under construction, and therefore its contribution to the economic growth and development of the region has not yet reached its potential. At the ASEAN–India informal summit held on 15 November 2018 in Singapore, the Government of India proposed to commission the Economic Research Institute for ASEAN and East Asia (ERIA) to conduct a study on developing an economic corridor along the TLH and the feasibility of its extension to Cambodia, the Lao PDR, and Viet Nam, and the proposal was welcomed by the leaders.

Figure 1.1. Trilateral Highway and Potential Eastward Extension Routes



EWEC = East−West Economic Corridor, GMS = Greater Mekong Subregion, NSEC = North−South Economic Corridor, SEC = Southern Economic Corridor, TLH = Trilateral Highway.

Source: Drawn by Umezaki and Kumagai (2020), based on ADB (2018b).

Based on the Thai proposal at the 16th ASEAN Highways Sub-Working Group Meeting (16th AHSWG) in August 2018 and other existing initiatives such as the Greater Mekong Subregion (GMS), the Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, the Master Plan on ASEAN Connectivity (MPAC) 2025, and the ASEAN Highway Network (AHN), as well as the recognition that connectivity to international ports is an important factor for the development of economic corridors, this study will consider the potential eastward extension routes presented in Figure 1.1.

(1) Original alignment:

Moreh− (**India/Myanmar border)**−Tamu−Kygone−Kalewa−LarPoh−Yargyi−Monywa−Mandalay−Nay Pyi Taw−Bago (−Yangon)−Thaton−Eindu−Hpa-An−Kawkareik−Myawaddy **(Myanmar/Thailand border)** Mae Sot

(2) Northern route for eastward extension:

Meiktila−Loilem−Keng Tong−Tarlay−Keng Lap (**Myanmar/Lao PDR border [Myanmar−Lao PDR Friendship Bridge])** Xieng Kok−Muang Sing−Louang Namtha−Nateuy−Oudomxay−Muang Khua−Pang Hok **(Lao PDR/Viet Nam border)** Tay Trang−Dien Bien Phu−Son La−Hoa Binh−Ha Noi−Hai Phong

(3) Southern route for eastward extension:

Mae Sot−Tak−Nakhon Sawan−Bangkok(−Laem Chabang)−Hinkong−Kabinburi−Aranyaprathet **(Thailand/Cambodia border)** Poipet−Sisophon−Battambang−Pursat−Kampong Chhnang−Preach Kdam−Phnom Penh (−Sihanoukville)−Neak Loung−Bavet **(Cambodia/Viet Nam border)** Moc Bai−Go Dau−Ho Chi Minh City−Ba Ria−Vung Tau

In 2018, the Asian Development Bank (ADB) released a series of comprehensive reports on the assessment and review of configuration of the economic corridors under the GMS Economic Cooperation Program (ADB, 2018a−2018h).[2] As a result of the reconfiguration, a significant part

[2] The recommendations on the configuration of GMS economic corridors in ADB (2018a, p.19) are closely related to the TLH and its eastward extension: (i) include an extension at the western end of the EWEC to *Yangon–Thilawa using the Myawaddy–Kawkareik–Eindu–Hpa-An–Thaton–Kyaikto–Payagi–Bago–Yangon–Thilawa route*, with a possible extension to Pathein; (ii) include the Kunming–Dali–Ruili–Muse–*Mandalay–Nay Pyi Taw–Yangon* route in the NSEC; (iii) add an extension to the Kunming–Dali–Ruili–Muse–Mandalay–Nay Pyi Taw–Yangon route *to link Mandalay to Tamu at the border with India, using the Mandalay–Kalewa–Tamu route via Monywa or Shwebo*; (iv) add the *Boten–Oudomxay*–Luang Prabang–Vang Vieng–Vientiane–Nong Khai–Udon Thani–Nakhon Ratchasima–Laem Chabang route to NSEC; and (v)

of the TLH was designated as parts of the North−South Economic Corridor (NSEC). The section between Tamu and Mandalay, via Kyigone, Kalewa, Lar Poh, Yargyi, and Monywa, was named as subcorridor No.6 of the NSEC (NSEC-6). The section between Mandalay and Bago, via Meiktila and Nay Pyi Taw was designated as subcorridor No.5 on the NSEC (NSEC-5). The section between Yangon and Myawaddy, via Bago, Thaton, Hpa-An, Kawkaleik, was confirmed as a part of the East−West Economic Corridor (EWEC) with some minor reconfiguration.

The northern route of the eastward extension does not overlap with the GMS economic corridors, except for short sections between Luang Namtha and Nateuy (NSEC-1), which is also a part of the Asian Highway No.12 (AH-12), and Nateuy and Oudomxay (Muangsai) (NSEC-2), which is also a part of the Asian Highway No.12 (AH-12). Several sections overlap only with the Asian Highway. Meiktila−Tarlay in Shan State of Myanmar is a part of the Asian Highway No.2 (AH-2). The long section from Oudomxay in the Lao PDR to Ha Noi in Viet Nam via Pang Hok/Tay Trang border overlaps with the Asian Highway No.13 (AH-13), whereas the remaining Hanoi–Haiphong section is also a part of the Asian Highway No.14 (AH-14). In 2019, ASEAN, with support from the World Bank and Australian Aid, identified the upgrading of the section between Tarlay and Keng Lap (Kyainglat) as one of the 19 initial pipeline projects (World Bank et al., 2019a).[3] In summary, the remaining section on the northern extension route, which is not covered by any international cooperation initiatives, is between Xieng Kok and Luang Namtha via Muang Sing in the Lao PDR. In particular, the section between Xieng Kok and Muang Sing has long been left out of development, is the only unpaved section along the northern extension route.

The southern route of the eastward extension overlaps with the EWEC from Mae Sot to Tak, and with the NSEC-1 from Tak to Bangkok, and with the Southern Economic Corridor (SEC-1) from Bangkok to Ho Chi Minh City in Viet Nam via Cambodia. Two branch routes from Bangkok to Laem Chabang and from Phnom to Sihanoukville are also parts of the SEC-3 and SEC-4, respectively.

include a Bangkok and Ha Noi link in NSEC using the Bangkok–Nakhon Ratchasima–Udon Thani–Sakon Nakhon–Nakhon Phanom–Thakhek–Na Phao–Chalo (via Route No.12)–Vung Anh–Vinh–Ha Noi route; (vi) include a link between Vientiane and Ha Noi using the Paksan–Nam Phao–Cau Treo–Vinh route with an extension to Vung Anh. Italic highlights, added by the author, indicate the section directory related to the TLH and its eastward extension.

[3] World Bank et al. (2019b) also identifies the section between Takaw and Keng Tung (Kyaington) as one of the potential pipeline projects.

Overlapping with international cooperation initiatives does not guarantee assistance from the coordinating institutions, yet these sections are in a favourable position because they are closely connected with the international aid community. As ADB has its own funds to finance infrastructure projects, the sections that overlap with the GMS economic corridors are more likely to get access to external finance. Potential benefits of road infrastructure can be explored when the section is well connected to the existing networks of roads and other modes of transport. Therefore, it is important to design road infrastructure projects for the TLH and its eastward extension with close communication with these international cooperation initiatives. This also applies to the initial pipeline of transport infrastructure projects identified in the MPAC 2025 that are at an advanced stage of project preparation and are also being considered for co-financing from ASEAN's dialogue partners and international organisations.

1.3. The Trilateral Highway from the Perspectives of India, Myanmar, and Thailand

The TLH is originally an initiative of three countries: India, Myanmar, and Thailand. As is often the case, perspectives and expectations on the TLH differ by country. This subsection describes the image of the TLH from the perspectives of India, Myanmar, and Thailand separately, based on three country reports prepared for this study (De et al., 2020; MSR, 2020; and Banomyong, 2020).

(1) The Trilateral Highway from the Perspective of India[4]

The North Eastern Region of India (NER), consisting of the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim, is India's natural resource powerhouse. The region is endowed with not only vast natural resources such as oil and natural gas and hydropower, but also has an agroclimatic condition that has been helping the region to grow some of the country's best agroforestry products. A well-educated labour force, relatively high literacy rate, and access to clean water are some of its unique strengths over other Indian regions. Besides, the NER is surrounded by an international border, serving as India's gateway to the east. As against these strengths, there are weaknesses and threats emanating to a large extent from the difficult terrain of the region and inadequate infrastructure (Sarma and

[4] This subsection is based on the country report for India (De et al., 2020).

Bezbaruah, 2009). This poses one of the greatest constraints to economic growth, thereby nullifying the NER's border advantage. Transport and logistics bottlenecks have long been identified as serious constraints to the growth of the NER.[5]

Overall, trade and transport infrastructure in the NER is dominated by the distribution of goods and products that are sourced mostly from the rest of India. The region lags behind the rest of India in the pace of economic growth and has a relatively small regional market.[6] Trade has special significance for the economies of the NER states. However, growth potential is considerably high in the NER, when one considers its geographical proximity to growing Southeast Asian and East Asian markets. Given its geographical location, an enhanced engagement with ASEAN under the Act East Policy (AEP) may generate new economic opportunities, thereby fuelling the growth in the NER, other things being equal.

The NER is central to the AEP. The AEP is designed to provide economic opportunities to the NER to benefit from its vast border and vibrant neighbours. The NER's value chain potential can be unlocked if border infrastructure and transportation networks, in particular, are improved (De and Majumdar, 2014). In other words, improvement of border infrastructure, coupled with enhanced transportation networks with ASEAN, may provide new economic opportunities to the NER (Sarma and Choudhury, 2018).

To strengthen the connectivity between India and ASEAN, the TLH between India, Myanmar, and Thailand is being developed and there is a plan to extend the highway to Cambodia, the Lao PDR, and Viet Nam.[7] The completion of the TLH is expected to facilitate faster movement of goods and people between India and ASEAN[8] and add growth impetus to the NER (De et al., 2019).

(2) **The Trilateral Highway from the Perspective of Myanmar**[9]

The TLH is not new for Myanmar and has been in talks for more than two decades from the time of the military government. The origin of the TLH on the Indian side is the India Myanmar

[5] For example, De (2011), Brunner (2010), RIS (2012), De and Kunaka (2019), to mention a few.
[6] The total population of about 46 million (2011 census) with 70% living in Assam alone.
[7] According to the Chairman's Statement of the ASEAN-India Informal Breakfast Summit on 15 November 2018, the leaders welcomed India's proposal for a study by the Economic Research Institute for ASEAN and East Asia (ERIA) on developing an economic corridor along the Trilateral Highway (TLH) and the feasibility of its extension to Cambodia, Lao PDR, and Viet Nam.
[8] Kimura and Umezaki (2011) and De (2016), to mention a few.
[9] This subsection is based on the country report for Myanmar (MSR, 2020).

Friendship Road (IMFR), connecting Tamu, Kyigone and Kalewa, as well as another branch from Kyigone to Kalemyo. The construction of the IMFR was started in March 1993 by the Border Road Organisation (BRO) of India, and completed on 13 February 2001.[10]

During the initial talks on the TLH with India and Thailand in 2002, Myanmar was represented by the Ministry of Foreign Affairs, headed by U Win Aung, who served as the Minister for Foreign Affairs from 1998 until 2004. The plan was to construct a highway from Moreh in India to Mae Sot in Thailand. The route was initially planned to go through the city of Bagan in Myanmar and to be completed within 2 years. In April 2003, a technical field survey on the 1,360 kilometre (km) highway was completed, and the route alignment was agreed under the Khin Nyunt administration.

However, between 2004 and 2011, many of the infrastructure projects were put on hold or discontinued, and the TLH project was no exception.

During the Thein Sein administration (2011–2016), Myanmar re-energised its infrastructure projects in parallel with massive inflows of investment coming both from the private and public sectors. Myanmar and India held a bilateral summit talk in Nay Pyi Taw, during the state visit of Manmohan Singh on 27–29 May 2012, then Prime Minister of India, to Myanmar. As an important result of the meeting, the leaders agreed to resume the development of the TLH. In particular, India was to undertake the Kalewa–Yargyi road segment to highway standard while Myanmar would undertake upgrading the Yargyi–Monywa stretch to the same standard by 2016. Based on the agreement in May 2012, Prime Minister Narendra Modi approved commencing the construction of 69 bridges on the Tamu–Kyigone–Kalewa section of the TLH. The progress and the current status of these projects are discussed later in the Chapter 3 of this report.

Taking advantage of its strategic location, Myanmar has keen interest in enhancing connectivity with neighbouring countries to serve as a 'land bridge' connecting three vibrant regions: Southeast Asia, South Asia, and China. The connectivity with Thailand and other ASEAN member states has been undertaken under the GMS Economic Cooperation Program lead by ADB since 1992. The most relevant project is the GMS East–West Economic Corridor (GMS–EWEC), the original alignment of which starts at Mawlamyine, the capital city of Mon State of Myanmar,

[10] Ishida (2020), based on 'India, Myanmar road opened', *the Hindu*, 13 February 2001. After supporting the maintenance until 2009, India handed the road back to Myanmar.

passes though Thailand and Cambodia, and ends at Da Nang, a centrally-administered city in central Viet Nam. The connectivity with China was strengthened significantly during the military administration, when foreign relationships with other countries were almost discontinued. Myanmar is strategically important for China because it enables China to establish alternative trading routes to the Middle East, Africa, and Europe without passing through the Strait of Malacca. On the Indian side, the IMFR has been developed with assistance from India as mentioned above. Although the connectivity with neighbouring countries has been enhanced in this way under the initiatives of partner countries, these projects were designed to end at Myanmar, without exploring the full potential of Myanmar to become a land bridge. In this respect, the TLH is the first international initiative that assumes Myanmar's role as a land bridge connecting two of the three regions: South Asia and Southeast Asia. The current administration under the leadership of Aung San Suu Kyi recognises the TLH to be in line with national logistic plans.

(3) The Trilateral Highway from the Perspective of Thailand[11]

Thailand favours the development of the TLH and has a Thai-centric perspective where the country believes that it will gain the most benefits from linking with India. Official Thai position is that Thailand will benefit from the TLH as Thailand is now the centre of transport and communication in the region as well as the gateway to ASEAN. India wants to trade with and invest in Thailand and use Thailand as a springboard to other ASEAN countries (Public Relations Department, 2016). Despite the actual efforts to promote the TLH, the Thai administration has not made many public statements on the importance of the TLH.

The Thai position shows Thailand as the logistics hub for the region (i.e. Southeast Asia) as well as the main entry point into ASEAN for India although Myanmar is the first contact point with India, in particular when it comes to land connectivity.

Myanmar also wants to be a key connector in linking ASEAN with South Asia. Myanmar is right in the middle between India and Thailand and has a lot to gain from enhanced connectivity with its two neighbours. However, Myanmar has not formulated a regional connectivity strategy and is working hard in terms of its own domestic connectivity due to infrastructure and legal limitations. The current regulatory environment in Myanmar also requires more improvement

[11] This subsection is based on the country report for Thailand (Banomyong, 2020).

for the implementation of the trade and transport facilitation agenda, thus making transit trade challenging.

These types of competing national strategies need to be understood if enhanced integration and connectivity is going to be achieved for the TLH. There are discussions on the modalities required for the development of the TLH, but progress has been slow. This is because the TLH requires not only road infrastructure investment and development, but also a facilitating institutional environment.

There already exists Indian investment in Thailand and there have been efforts to link Ranong Port on the Andaman Sea with ports in India. The most positive outcome was a feeder service and some memorandums of understanding signed by the Port Authority of Thailand. The biggest issue is that Ranong Port has no hinterland and feeder vessels linking with India are often empty for one leg of the journey. Nonetheless, the Port Authority of Thailand has been persistent in their development effort to make Ranong Port successful. Another key issue is the access channel, which belongs to Myanmar.

Thai policymakers have a strong belief that Thailand is the logistics hub for ASEAN and a target for Indian trade and investment. At the same time, Thailand wants to use the TLH to transport goods via Myanmar to India as part of its logistics development in order to reduce costs for Thai businesses when trading with India. It is believed that this will enable Thailand to sell more agricultural products to India and other South Asian countries. Sanitary and phytosanitary issues do not seem to be an urgent agenda item in the discussion related to the TLH.

According to the Thai commercial attaché in New Delhi, the TLH is 'an opportunity for Thai trade and investment as Thai goods are popular in India and benefit from the Thai–India Free Trade Area (FTA), and the ASEAN–India FTA. Currently Thailand has a trade surplus of around US$ 8 billion with India. The average growth rate is around 10%, but many Thai businesses are unsure of doing business with India apart from the large firms due to a lack of information. The Indian market is changing rapidly and "new" India is an opportunity' (Matichon, 2018).

The Ministry of Commerce of Thailand has been inviting Thai small and medium-sized enterprises to develop their markets in India as demand is high with limited competition. The physical completion of the highway will enable enhanced connectivity with Thai agricultural products and perishable goods taking around 3 to 4 days to access markets in the NER of India,

which is faster than using sea transport from Thailand. The advice given is for Thai small and medium-sized enterprises to sell goods first and then explore investment opportunities with the Thai commercial office in New Delhi, which is willing to coordinate with Indian agencies to facilitate investment.

Provincial policymakers in Tak Province, at the border with Myanmar, also see the completion of the physical infrastructure as critical to the increase in trade, especially border trade. Local officials believe that there will be an increase by 42% of border trade value as a result of the completion of the second bridge linking Thailand and Myanmar. The expected yearly value for border trade was estimated at B100 billion, with the TLH being one of its main drivers. The TLH is seen as the main trade route between Mae Sot–Myawaddy–Yangon–India. The distance to India from Mae Sot is not considered far, with easy access and faster transit times.

This means that Thai goods will be able to access the eastern part of India, especially consumer goods as Thai products are considered to be high quality with reasonable prices. Thai goods are well accepted by consumers in neighbouring countries. However, since there are no official statistics for border trade, it is difficult to accurately estimate the overall value of border trade. It has been estimated that border trade values are underestimated by at least 60%.

The Thai private sector sees opportunities for cooperation along the TLH in agriculture, infrastructure, logistics, and tourism. The Thai private sector is looking for partners both in Myanmar and India to enable their cooperation interest. However, there is still a lack of information related to opportunities as well as an uncertain business environment.

There is a gap in understanding between the Ministry of Commerce and the perception of the Thai private sector. The Thai private sector considers the Indian market to be difficult and challenging to penetrate. They have limited knowledge of the potential market in the North Eastern Region of India. Even those that are selling there do not organise the logistics and prefer to sell at the Thai border. The buyers from Myanmar or India must arrange for the logistics themselves. Official transit is difficult and the use of ‘grey’ channels is the current optimal logistical system. This is why finding accurate border and transit trade statistics is impossible.

Tourism opportunities are often discussed by the Thai private sector. There is a strong potential for growth in tourism with the eastern part of India. Thailand is already a destination for Indian tourists. On average, there are more than 1 million Indian tourists per year visiting Thailand. Thailand is also a preferred location for 'Bollywood' movies, thus making Thailand well known to the Indian public.

The opinions related to the development of the TLH are mostly favourable both from the public and private sector in Thailand. However, the private sector sees more the challenges of linking with India via Myanmar from a trading perspective. Uncertain rules and regulations, unreliable logistics channels, limited infrastructure, and the lack of integrated service providers for transit to India has dampened the appetite of the Thai private sector. The public sector is more optimistic as it believes that the discussion between the three countries (India, Myanmar, and Thailand) will eventually create not only the infrastructure links, but also the supporting environment that will enable the success of the TLH.

1.4. Stocktaking

(1) ASEAN–India Connectivity (ERIA)

In 2010, ERIA conducted one of the earliest studies on connectivity between ASEAN and India, as an extension of its flagship study on the Comprehensive Asia Development Plan (CADP) (ERIA, 2010). The TLH was of course one of the key initiatives studied in the project. The resulting report, Kimura and Umezaki (2011), pointed out several policy recommendations related to the TLH. As for physical infrastructure, several sections were identified for repair or upgrading works including (i) a mountainous section between Palel and Moreh in Manipur, India, (ii) a section near the Thai border between Thingannyinaung and Kawkareik in Myanmar, and (iii) a section between Chaung U and Kalay in Myanmar. Regarding the institutional arrangements, Kimura and Umezaki (2011) pointed out the importance of (i) removing the restrictions on the tradable items and the mode of settlement for the border trade between India and Myanmar, and (ii) a proper enforcement of regional transport arrangements to enable logistic services providers to reduce the cost of cross-border transport.

The change of government in Myanmar in March 2011 triggered international assistance to the country, including those for the development of the TLH. During her first visit to Myanmar in October 2011, the Thai Prime Minister, Yingluck Shinawatra, discussed the importance of

bilateral cooperation including the construction of a new bypass road between Thingannyinaung and Kawkareik. As a result, a bypass route connecting the two towns was newly constructed under the assistance of Thailand, and officially inaugurated in June 2015. In May 2012, India's Prime Minister, Manmohan Singh, made a historical visit to Myanmar, for the first time in a quarter century, to embark on a new journey of bilateral cooperation, which included India's assistance to upgrade the Kalewa–Yagyi section by 2016 and to repair 71 bridges along the India Myanmar Friendship Road from Tamu, Kyigone, to Kalewa (TKK: 149.70 km), while Myanmar would upgrade the Yargyi–Monywa stretch to highway standard. Although delayed, the upgrading work of a 120.74 km section between Kalewa and Yagyi has been in progress with assistance from India and aiming for completion by May 2021. This would serve as an alternative route connecting Kalay and Chaung U in Myanmar. Looking beyond Moreh, the terminal point of the TLH in India, a 95 km section between Moreh and Imphal, including the section between Moreh and Palel, has been being upgraded and expanded assisted by ADB. In addition, an integrated check post was opened in Moreh in January 2019 to upgrade the functions of the existing land custom station. Institutional arrangements have been improved as well. Border trade between Moreh (India) and Tamu (Myanmar) was normalised in 2015 by removing the positive list of tradable items for barter trade. Furthermore, in order to facilitate cross-border transport along the TLH, India proposed a motor vehicles agreement to Myanmar and Thailand, although it is still under negotiation.

As described above, most policy recommendations by Kimura and Umezaki (2011) have already been realised or at least are in progress along the TLH. However, the development of the TLH itself is still in an early stage, and the utilisation is still limited, particularly on the Indian side as illustrated in the next subsection.

(2) GMS Economic Corridors (ADB)

As illustrated in Figure 1.1 the original alignment of the TLH is a combination of a part of the GMS–NSEC and the GMS–EWEC.

ADB conducted a comprehensive assessment of GMS economic corridors and published a series of reports in December 2018 (ADB, 2018b–2018h). The key items in this study are the road class (design standard) based on the Asian Highway standards and road conditions.

According to ADB (2018b), two sections in Myanmar, a 91.7 km section between Kalewa and Lah Poh and a 150.8 km section between Kalay and Gangaw, are classified as Below Class III in terms of design standard (Figure 1.2). The section between Kalewa and Lah Poh is part of a 122 km section between Kalewa and Yagyi, which is being upgraded with assistance from India. According to the Thai presentation at the 16th ASEAN Highways Sub-Working Group Meeting (16th AHSWG) in August 2018, this route is regarded as a part of the TLH. The section between Kalay and Gangaw, which is a part of the Asian (and ASEAN) Highway No.1, is not part of the official alignment of the TLH. This section is also important as an alternative route when the route through Kalewa, Lah Poh, and Yagyi is not available due to, for example, possible flooding of the Chindwin river.

Figure 1.3 indicates more sections that need upgrading. Along the TLH, the India Myanmar Friendship Road from Tamu and the section between Kalewa and Lah Poh are classified as Poor, and the sections between Lah Poh and Mandalay and between Nay Phi Taw and Taunggoo are classified as Fair.

The ADB reports cover all routes of the GMS economic corridors, therefore the information on the road class and road conditions are available for other GMS countries. This will be an indispensable source of information for the study team to consider the eastward extension of the TLH.

As Figure 1.4 shows, the road infrastructure in Thailand has no significant problems as all sections on the GMS economic corridor are designed as Primary or Class I, and the road condition is classified as Good. In Viet Nam, there is no Below Class III section and the road condition is largely Good. In Cambodia, the Lao PDR, and Myanmar, there remain significant sections Below Class III and Poor road condition.

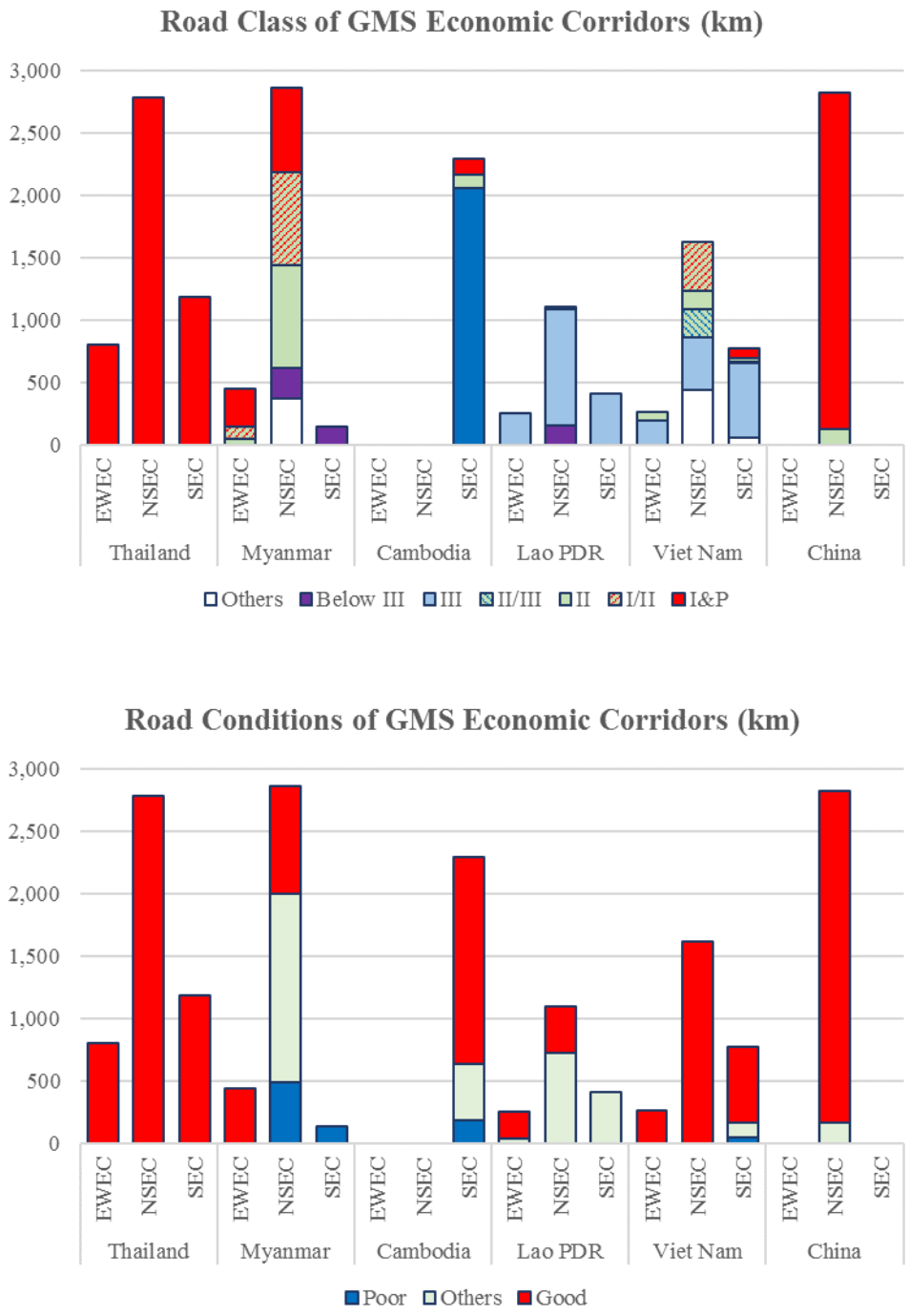
Figure 1.2. GMS Economic Corridor Routes in Myanmar: Road Class

Lao PDR = Lao People's Democratic Republic; PR = People's Republic; TBD = to be determined; GMS = Greater Mekong Subregion.
Source: ADB (2018b).

Figure 1.3. GMS Economic Corridor Routes in Myanmar: Road Conditions

Lao PDR = Lao People's Democratic Republic; PR = People's Republic; TBD = to be determined; GMS = Greater Mekong Subregion.
Source: ADB (2018b).

Figure 1.4. Assessment of GMS Economic Corridors



EWEC = East–West Economic Corridor, GMS = Greater Mekong Subregion, I&P = Class I and Primary, NSEC = North–South Economic Corridor, SEC = Southern Economic Corridor.
Source: Compiled based on ADB (2018b).

(3) The Asian Highway (UNESCAP)

The Asian Highway (AH) is a regional transport cooperation initiative aimed at enhancing the efficiency and development of road infrastructure in Asia, in support of the development of Euro–Asia transport links and improving connectivity for landlocked countries. The AH network comprises over 141,000 km of roads passing through 32 member countries. Although the AH project was initiated in 1959, the progress was slow until political and economic changes in the region spurred renewed interest in the network in the late 1980s and early 1990s. The formalisation of the AH network was initiated in 2002. UNESCAP worked with member countries to develop the International Agreement on the Asian Highway Network, which was adopted on 18 November 2003 and entered into force on 4 July 2005. The agreement includes a list of AH routes, classification, and design standards.

UNESCAP maintains the AH database, which includes more detailed information on the road conditions than the ADB reports. The AH database is updated on a biennial basis, and the last update was done in 2019. As the updating procedure depends on voluntary submission of information by member countries, the latest available data differ by country. The latest data were submitted in 2019 by India, Myanmar, and Viet Nam, and in 2017 from Thailand and Cambodia, whereas the Lao PDR has not updated the information since 2010. In addition, although UNESCAP prepares a template for the database, the available items and the quality of the data differ significantly by country. Although the information provided in the AH database is not sufficient to identify exact sections classified to each category, it is useful to narrow down the sections to conduct a detailed study.

The TLH overlaps with the Asian Highway No.1 (AH-1) between Tamu and Kyigone, between Sagaing and Myawaddy via Mandalay and Bago (Payagyi), and the additional section between Bago (Payagyi) and Yangon. According to the latest data for Myanmar in the AH database,[12] there are no Below Class III sections along these sections. Regarding the surface condition, 0.604 km out of 12.372 km section between Mandalay and Sagain, and 34.11 km out of 131.362 km section between Kalay (Kalemyo) and Tamu are assessed as Poor condition.[13]

The northern route of eastward extension overlaps with the Asian Highway No.2 (AH-2) between

[12] Although the recent update was done in 2019, the information may not always reflect the status as of 2019.

[13] The section between Kalay (Kalemyo) and Kyigone is not part of the TLH.

Meiktila and Keng Tung via Kalaw, Taunggyi, Loilem, and Ta Kaw (633.37 km) and the section between Keng Tung and Tarlay, which is a part of 156.81 km section between Keng Tung and Tachileik. According to the AH database, there are Below Class III sections (unknown distance) on the 356.169 km section between Loilem and Keng Tung, and a 24.688 km section with Poor surface condition on the 177.129 km section between Loilem and Ta Kaw.

In the Lao PDR, the northern route of the eastward extension overlaps with the Asian Highway No.3 (AH-3) between Luang Namtha and Nateuy, with the Asian Highway No.12 (AH-12) between Nateuy and Oudomxay, and with the Asian Highway No.13 (AH-13) between Oudomxay and Pang Hok (a border with Viet Nam). According to the AH database, although it has not been updated since 2010, the 45 km section between Luang Namtha and Nateuy is Class II and the surface condition is Good; the 79 km section between Nateuy and Oudomxay is Class III and the surface condition is Good; the 172 km section between Oudomxay and Pang Hok is Class III and 103 km of the section is Good and the remaining 69 km is Fair in terms of the surface condition.

In Viet Nam, the northern route of the eastward extension overlaps with the AH-13 from Tay Trang (a border with the Lao PDR) to Ha Noi via Dien Bien Phu, Son La, and Hoa Binh; with AH-1 within Ha Noi from Hoang Mai to Thach Ban; and with the Asian Highway No.14 (AH-14) from Ha Noi to Hai Phong via Hai Duong. Although there is no information on the design standard in the AH database, all sections are two lanes or more, and the surface condition is Fair or Good, implying that there is no significant problem in the Viet Nam section of the northern route of eastward extension.

In Thailand, the southern route of the eastward extension is assumed to overlap with the AH-1 from Mae Sot (the border with Myanmar) to Aranyaprathet (the border with Cambodia) via Tak, Nakon Sawan, and Hin Kong. According to the AH database, out of the total stretch (697.414 km), a 14.0 km section between Nonh Khae and Hin Kong is classified as Priority, and more than 605.639 km is Class I, and less than 77.775 km is Class II. That is, there is almost no problem in the road infrastructure in Thailand.

In Cambodia, the southern route of the eastward extension overlaps with the AH-1 from Poipet (the border with Thailand) to Bavet (the border with Viet Nam) via Kampong Chhnang and Phnom Penh. According to the AH database, out of the total stretch (577 km), more than 139 km is classified as Class II and more than 395 km is Class III. The remaining 43 km between Svay Rieng

and Bavet consists of Class II and Class III sections. In terms of surface condition, all sections are evaluated as Good. Although there remains room for improvement, it is important to emphasise that there is no Below Class III section any more, and the surface condition is Good along the southern route of the eastward extension.

In Viet Nam, the southern route of the eastward extension overlaps with the AH-1 from Moc Bai (the border with Cambodia) to Bien Hoa passing close by Ho Chi Minh City, and then with the Asian Highway No.17 (AH-17) from Bien Hoa to Vung Tau City. Although the information on the design standard is not provided in the AH database, the 29.9 km section between Moc Bai and Bien Hoa is four lanes, asphalt paved, and the surface condition is Fair; and the 73.6 km section between Bien Hoa and Vung Tau City via Phu My is six lanes, asphalt paved, and the surface condition is Good. That is, the southern route of the eastward extension in Viet Nam has no serious problem in the quality of road infrastructure.

In summary, along the original alignment of the TLH and its eastward extension, road sections classified as Below Class III or assessed as Poor surface condition are found only in Myanmar, according to the AH database. It is therefore important to put an explicit focus on these sections because the weakest link tends to determine the strength of the entire stretch of the road (Banomyong, 2012). In addition, the sections which do not overlap with the AH, i.e. the sections between Chaung-U and Kalewa via Yargyi and between Tarlay and Luang Namtha via the Myanmar–Lao PDR Friendship Bridge, need to be assessed in detail in this study.

(4) MPAC 2025 (ASEAN)

The Master Plan on ASEAN Connectivity 2025 (MPAC 2025) is one of the most important plans of cooperation in ASEAN in recent years (ASEAN, 2015). In order to achieve a seamlessly and comprehensively connected and integrated ASEAN that will promote competitiveness, inclusiveness, and a greater sense of community, the MPAC 2025 identifies five strategic areas: (i) sustainable infrastructure, (ii) digital innovation, (iii) seamless logistics, (iv) regulatory excellence, and (v) people mobility. It is important to note that all these areas are more or less related to the objectives of the TLH, implying that the development of the TLH itself can be a building block to achieve the vision of the MPAC 2025.

In November 2019, the ASEAN Secretariat released two reports on the initial pipeline of ASEAN infrastructure projects, the technical assistance from the World Bank, and the support of the

ASEAN–Australia Development Cooperation Program Phase II (World Bank et al., 2019a, 2019b). 'The pipeline will be rolling, meaning that projects in the Initial Pipeline will evolve over time, as new project proposals are submitted, and existing projects in the Initial Pipeline are either implemented or removed from the Initial Pipeline due to lack of progress or change in circumstances. In this way, the pipeline is designed to be a long-term dynamic tool to help the ASEAN Member States assess and prioritize infrastructure projects that will have regional impacts' (World Bank et al., 2019b, p.3).

Table 1.2 presents the list of initial and potential pipeline infrastructure projects. The projects highlighted in yellow are part of the original alignment of the TLH, whereas those highlighted in green are part of the eastward extension of the TLH. In addition, projects highlighted in blue are expected to generate significant synergies with the TLH and its eastward extension, by providing alternative modes of transport or enhancing connectivity with other parts of the region. The Yangon–Mandalay Expressway is indeed the most important segment of the TLH because it connects the two largest cities in Myanmar. This arterial road could be further enhanced by the Nay Pyi Taw–Kyaukpyu Expressway and the Muse−Tigyaing−Mandalay Expressway in the initial pipeline, and the Muse−Mandalay Railway and the Kan Pai Ti–Myiktyina−Tigyaing Expressway in the potential pipeline, because they are expected to enhance further the already strong connectivity with China. During the process, the role of Mandalay as a logistics hub will be strengthened, which in turn is expected to increase the traffic along the TLH as well. The Tamu−Kalay−Mandalay Railway in the potential pipeline is a challenging and costly project, which may require the success of the TLH in terms of increased flows of people, goods, and vehicles along the route as a prerequisite.

Table 1.2. Initial and Potential Pipeline Projects for MPAC 2025

	Initial Rolling Pipeline Projects	Country	Sector	Type	US$ mil.
1	Jalan Rasau Road Upgrading (19km)	Brunei	Road	B	44
2	Siem Reap – Ratanakiri Road Upgrading (390km)	Cambodia	Road	B	463
3	Kuala Tanjung International Hub Port and Industrial Estates: Phase II	Indonesia	Port	B	265
4	Expansion of Hang Nadim International Airport	Indonesia	Airport	B	421
5	Development of Kijing Port	Indonesia	Port	G	400
6	Lao PDR National Road No. 2 Upgrading (230km)	Lao PDR	Road	B	272
7	Lao PDR National Road No. 8 Upgrading (132km)	Lao PDR	Road	B	207
8	Lao PDR – Viet Nam Power Interconnector	Lao PDR	Power	G	50-130
9	Lao PDR – Myanmar Power Interconnector: Lao PDR Section	Lao PDR	Power	G	16.5
10	Myanmar – Lao PDR Power Interconnector: Myanmar Section	Myanmar	Power	G	50
11	Nay Pyi Taw – Kyaukpyu Expressway (380.85km)	Myanmar	Road	G/B	540
12	Muse – Tigyaing – Mandalay Expressway (443km)	Myanmar	Road	G	868
13	Yangon – Mandalay Expressway (589km)	Myanmar	Road	B	935
14	Tarlay – Kyainglat Road Upgrading (56.3km)	Myanmar	Road	B	71
15	ASEAN Digital Hub	Thailand	ICT	G	152
16	Hat Yai – Sadao Motorway	Thailand	Road	G	1,295
17	Bangkok – Nong Khai HSR: Phase II (355km)	Thailand	Rail	G	7,930
18	Southern Coastal Corridor Project: Phase II (100km)	Viet Nam	Road	G	346
19	Ho Chi Minh City – Moc Bai Expressway	Viet Nam	Road	G	570

	Potential Pipeline Projects	Country	Sector	Type	US$ mil.
1	Tunnel to Brunei Temburong Bridge	Brunei	Bridge	G	219
2	Jalan Labu Road Upgrading	Brunei	Road	B	22
3	Phnom Penh - Bavet Railway	Cambodia	Railway	G	865
4	H.A.S. Hanandjoedin Airport	Indonesia	Airport	B	27
5	Trans-Sumatra Railway: Jambi – Betung – Palembang	Indonesia	Railway	G	500
6	Trans-Sumatra Toll Road: Kuala Tanjung – Tebing Tinggi – Parapat	Indonesia	Road	G	63
7	Trans-Sumatra Toll Road: Palembang –Tanjung Api-Api	Indonesia	Road	G	676
8	Vientiane – Mu Gia Railway	Lao PDR	Rail	G	3,457
9	Mu Gia – Vung Ang Railway	Viet Nam	Rail	G	1,587
10	Thakhek – Savannakhet – Pakse – Vang Tao Railway	Lao PDR	Railway	G	2,306
11	National Road No.18A Upgrading	Lao PDR	Road	B	76
12	Lao PDR – Viet Nam Power Interconnector (North)	Lao PDR	Power	G	400
13	Viet Nam – Lao PDR Power Interconnector (North)	Viet Nam	Power	G	400
14	Muse – Mandalay Railway	Myanmar	Railway	G	4,000
15	Tamu – Kalay – Mandalay Railway	Myanmar	Railway	G	2,500
16	Dawei – Hitki Railway	Myanmar	Railway	G	2,200
17	Mawlamyine – Ye – Dawei Railway Upgrade	Myanmar	Railway	B	415
18	Kan Pai Ti – Myitkyina – Tigyaing Expressway	Myanmar	Road	G	840
19	Takaw – Kyaington Road Upgrading	Myanmar	Road	B	216
20	Hpa-An Bridge	Myanmar	Bridge	G	25
21	5th Thai – Lao Friendship Bridge	Thailand	Bridge	G	80

ASEAN = Association of Southeast Asian Nations, ICT = information and communications technology, MPAC = Master Plan on ASEAN Connectivity.
Note: G and B denote greenfield and brownfield investment, respectively.
Source: Compiled based on World Bank et al (2019a, 2019b).

The National Route No.2 (NR-2) in the Lao PDR,[14] Tarlay–Kyainglat (Keng Lap), and the Ho Chi Minh City–Moc Bai Expressway overlap the northern route of the eastward extension of the TLH. The first two projects in the Lao PDR and Myanmar are still at early stages. In contrast, the Ho Chi Minh City–Moc Bai Expressway may be close to implementation as the Korea International Cooperation Agency recently conducted a pre-feasibility study in 2018.

The ongoing initiatives for the TLH and the eastward extension share the vision with the MPAC 2025, in the sense that both set a goal to achieve regional prosperity through the enhancement of physical and institutional connectivity. The eastward extension will provide more opportunities to the ASEAN member states to enhance the connectivity within the region as well as to widen access to India. In this respect, the TLH can be regarded as an important subset of the MPAC 2025. With this close relevance and strong commitment of the original members, India, Myanmar, and Thailand, the TLH can spearhead the development of regional transport and economic corridors, and thereby be an enabler of the MPAC 2025.

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[14] Exactly speaking, NR-2 consists of NR-2W (130 km) from Pakbeng to Oudomxay (Muangxay) and NR2E from Oudomxay to Pang Hok at the border with Viet Nam facing Tay Trang (World Bank et al., 2019a). Although World Bank et al (2019a) explain eastward terminal is Khoua district, the attached map in World Bank et al (2019a) indicates the terminal is at the border with Viet Nam, that is, Pang Hok in May district.

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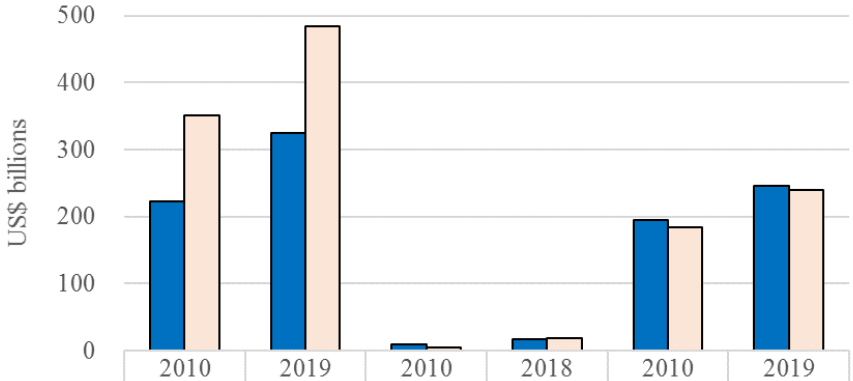
Chapter 2

Trade Connectivity

2.1. International Trade of India, Myanmar, and Thailand

Reflecting the differences in the sizes of their economies, India, Myanmar, and Thailand's amounts of international trade also differ significantly. India carries out the most international trade, followed by Thailand and Myanmar (Figure 2.1). Both exports and imports have grown in all three countries at different rates of change. The compound average growth rates (CAGRs) are the highest in Myanmar, followed by India and Thailand. Myanmar's CAGRs of exports and imports between 2010 and 2018 were 8.2% and 18.8%, respectively. The corresponding CAGRs between 2010 and 2019 for India were 4.2% and 3.6%, and those for Thailand were 2.6% and 3.0%, respectively. An important characteristic of India is its large and expanding trade deficit. Although exports have been growing faster than imports, India's trade deficit widened from US$127.9 billion in 2010 to US$159.7 billion in 2019. In contrast, exports and imports for Thailand have relatively been balanced, with a moderate degree of surplus. In Myanmar, the CAGR is much higher for imports than exports, resulting in a reversal of the trade balance from a surplus of US$4.0 billion in 2010 to a deficit of US$2.7 billion in 2018.

Figure 2.1. International Trade of India, Myanmar, and Thailand



	India		Myanmar		Thailand	
	2010	2019	2010	2018	2010	2019
Exports	222.9	324.2	8.9	16.7	195.3	245.3
Imports	350.8	483.9	4.9	19.3	184.5	240.0

Source: Compiled based on Global Trade Atlas.

Tables 2.1 to 2.6 present the top-10 export and import partners for India, Myanmar, and Thailand, respectively, together with trade connectivity amongst the three countries and with neighbouring countries, namely the Lao PDR, Cambodia, Viet Nam, Bangladesh, Bhutan, Nepal, and Sri Lanka. Trade partners with positive but the smallest records of trade are also listed in each table to indicate the degree of diversification.

India's international trade is highly diversified. The numbers for export destination and import origin are more than 230 and 220, respectively, and the cumulative share of top-10 trade partners reaches 55.0% (Tables 2.1 and 2.2). Although Thailand has more trade partners, the cumulative shares of top 10 partners are more than 60%, indicating a higher concentration of major trade partners than India (Tables 2.5 and 2.6). In contrast, Myanmar's international trade is not diversified, both in terms of the smaller number of trade partners and the higher cumulative shares of its top-10 partners, reflecting the smaller size and the backwardness of the economy (Tables 2.3 and 2.4). However, the changes in both figures between 2010 and 2018 and the CAGRs clearly indicate that Myanmar has been in the process of rapid growth and diversification of international trade, which was triggered most likely by the transition from military to civilian rule started in March 2011.

Thailand and India have been very important trade partners for Myanmar, but the opposite is not true. Reflecting the large amount of natural gas exports to Thailand through pipelines, Myanmar's exports to Thailand exceed US$3 billion, with shares of 35.8% in 2010 and 18.3% in 2018 (Table 2.3). Thailand is also the third-largest origin for Myanmar's imports, comprising 9.6% in 2010 and 13.4% in 2018 (Table 2.4). India is the fourth-largest export destination, comprising 10.8% in 2010 and 3.4% in 2018 (Table 2.3). Myanmar's imports from India increased rapidly at a CAGR of 25.4% between 2010 and 2018, resulting in a rise in the share and rank from 3.3% (8th) to 5.1% (4th) (Table 2.4). Despite being in close proximity, India's trade with Myanmar is still very limited. As India's export destination, Myanmar had a share of 0.1% and ranked 75th in 2010 and a share of 0.3% and ranked 52nd in 2019 (Table 2.1). As India's import origin country, Myanmar shared and ranked 0.3% and 43rd in 2010 and 0.1% and 71st in 2019 (Table 2.2). Thailand has stronger trade connectivity with Myanmar in comparison with India. In Thailand's exports, Myanmar had a share of 1.1% and ranked 22nd in 2010 and 1.8% (17th) in 2018 (Table 2.5). On the import side, the comparable figures are 1.5% (15th) and 1.4% (18th), respectively (Table 2.6).

India and Thailand enhanced their bilateral trade connectivity from the 2010s. The CAGRs of bilateral trade are higher in both directions and for both countries than the CAGRs of total exports and imports of the respective countries. India's exports to Thailand grew at a CAGR of 8.2% between 2010 and 2019, which is higher than the CAGR of India's total exports (4.2%), resulting in an increase in the share from 1.0% (29th) to 1.3% (21st) (Table 2.1). During the same period, India's imports from Thailand grew at a CAGR of 6.6%, which is higher than the CAGR of India's total imports (3.6%), resulting in an increase in the share from 1.1% (25th) to 1.5% (20th) (Table 2.2). On the other hand, Thailand's exports to India grew at a CAGR of 5.8% between 2010 and 2019, which is higher than the CAGR of Thailand's total exports (2.6%), resulting in an increase in the share from 2.2% (11th) to 3.0% (10th) (Table 2.5). Similarly, Thailand's imports from India grew at a CAGR of 8.8%, which is higher than the CAGR of India's total imports (3.0%), resulting in an increase in the share from 1.2% (19th) to 2.0% (13th) (Table 2.6).

India's trade relationship with Cambodia and the Lao PDR remains unexploited. In India's exports, Cambodia and the Lao PDR ranked 116th and 171st out of 233 destinations in 2010 and remained 102nd and 158th in 2019. In India's imports, Cambodia and the Lao PDR ranked 142nd and 122nd out of 222 origin countries in 2010 and remained 121st and 168th in 2019. The shares are almost negligible (Table 2.1). In contrast, India's trade relationship with Viet Nam has been enhanced steadily during the last decade. The share and rank of Viet Nam in India's exports rose from 1.1% (24th) in 2010 to 1.7% (14th) in 2019. The comparable figures on the import side are 0.3% (45th) and 1.5% (19th).

Despite the geographical and political proximity, Myanmar's trade relationship with the Lao PDR and Cambodia remains very weak, probably reflecting the weak complementarity in tradable goods. In 2010, the rank of the Lao PDR in Myanmar's exports was 72nd out of 74 export destinations, and the amount was negligible. There is no record of exports to Cambodia in 2010. In 2018, even after the establishment of the ASEAN Economic Community in 2015, Cambodia and Lao PDR ranked 48th and 125th out of 138 export destinations for Myanmar (Table 2.3). The situation on the import side is more or less the same. Similar to the case of India, Myanmar has had an enhanced trade relationship with Viet Nam during the last decade. The share and rank of Viet Nam in Myanmar's exports rose from 0.7% (13th) in 2010 to 1.3% (14th) in 2018. The comparable figures on the import side are 0.8% (13th) and 3.0% (8th) (Table 2.4).

Taking advantage of the geographical proximity and more advanced regional cooperation framework, Thailand has enhanced trade connectivity with Cambodia, the Lao PDR, and Viet Nam (CLV). During the last decade, the shares of CLV countries in Thailand's exports have risen from 1.2% (19th) to 2.9% (11th) for Cambodia; from 1.1% (20th) to 1.6% (19th) for the Lao PDR; and from 3.0% (9th) to 4.9% (4th) for Viet Nam, respectively (Table 2.5). On the import side, the shares increased from 0.1% (51st) to 1.0% (25th) for Cambodia; from 0.4% (30th) to 1.1% (23rd) for the Lao PDR; and from 0.8% (26th) to 2.3% (12th) for Viet Nam, respectively (Table 2.6).

All three countries have become more dependent on imports from China. China's share in India's imports rose from 11.8% (1st) in 2010 to 14.1% (1st) in 2019 (Table 2.2). The comparable figures are 19.8% (2nd) to 32.2% (1st) for Myanmar, and 13.3% (2nd) to 21.2% (1st) for Thailand, respectively (Tables 2.4 and 2.5). China is also an important export destination for all three countries, but only Myanmar has significantly expanded exports to China, with a CAGR of 46.6% between 2010 and 2018 from 2.9% (7th) to 33.3% (1st) (Table 2.3). Thailand's exports to China grew at a CAGR of 3.4%, which is only slightly above the CAGR for total exports (2.6%). As a result, China expanded the share from 11.0% to 11.8%, but fell from first place as Thailand's export destination (Table 2.5). During the last decade, India's exports to China have shrunk in terms of value, from US$17,519 million in 2010 to US$17,128 million in 2019. Although China remains in 3rd place as an export destination for India, the share fell from 7.9% to 5.3% (Table 2.1).

Trade connectivity with other countries differs by country. Reflecting the geographical proximity, India has a stronger trade relationship with countries in the Middle East and Europe. The larger shares of Singapore and Hong Kong in Myanmar's trade may be explained by some forms of transit trade through these regional logistic hubs. Thailand's strong trade connectivity with Japan is a reflection of the division of work in the manufacturing sector, which has been fostered for several decades.

Table 2.1. India's Exports by Destination

2010					2019					CAGR 2010 →19
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	
-	World	222,922	100.0%	-	-	World	324,163	100.0%	-	4.2%
1	UAE	29,507	13.2%	13.2%	1	United States	53,866	16.6%	16.6%	9.6%
2	United States	23,545	10.6%	23.8%	2	UAE	29,827	9.2%	25.8%	0.1%
3	China	17,519	7.9%	31.7%	3	China	17,128	5.3%	31.1%	-0.3%
4	Hong Kong	9,518	4.3%	35.9%	4	Hong Kong	12,116	3.7%	34.8%	2.7%
5	Singapore	9,094	4.1%	40.0%	5	Singapore	10,591	3.3%	38.1%	1.7%
6	Netherlands	6,579	3.0%	43.0%	6	United Kingdom	8,805	2.7%	40.8%	3.6%
7	United Kingdom	6,422	2.9%	45.8%	7	Netherlands	8,779	2.7%	43.5%	3.3%
8	Germany	5,997	2.7%	48.5%	8	Germany	8,578	2.6%	46.2%	4.1%
9	Belgium	5,028	2.3%	50.8%	9	Bangladesh	8,334	2.6%	48.7%	11.9%
10	France	4,861	2.2%	53.0%	10	Nepal	7,292	2.2%	51.0%	16.1%
19	Sri Lanka	3,314	1.5%	69.1%	14	Viet Nam	5,508	1.7%	58.3%	9.2%
20	Bangladesh	3,024	1.4%	70.4%	21	Thailand	4,347	1.3%	68.9%	8.2%
24	Viet Nam	2,485	1.1%	75.3%	23	Sri Lanka	4,215	1.3%	71.5%	2.7%
29	Thailand	2,145	1.0%	80.4%	52	Myanmar	956	0.3%	90.8%	14.9%
34	Nepal	1,907	0.9%	84.7%	64	Bhutan	707	0.2%	93.7%	18.0%
75	Myanmar	273	0.1%	96.7%	102	Cambodia	204	0.1%	98.1%	14.3%
90	Bhutan	159	0.1%	98.1%	158	Lao PDR	29	0.0%	99.9%	15.1%
116	Cambodia	61	0.0%	99.2%						
171	Lao PDR	8	0.0%	100.0%						
233	Western Sahara	1.6E-03	0.0%	100.0%	236	Serbia & Montenegro	2.7E-05	0.0%	100.0%	-77.1%

Source: Compiled based on Global Trade Atlas.

Table 2.2. India's Imports by Origin

2010					2019					CAGR 2010 →19
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	
-	World	350,783	100.0%	-	-	World	483,864	100.0%	-	3.6%
1	China	41,333	11.8%	11.8%	1	China	68,365	14.1%	14.1%	5.8%
2	UAE	30,977	8.8%	20.6%	2	United States	36,241	7.5%	21.6%	7.4%
3	Switzerland	22,292	6.4%	27.0%	3	UAE	30,456	6.3%	27.9%	-0.2%
4	Saudi Arabia	20,407	5.8%	32.8%	4	Saudi Arabia	27,151	5.6%	33.5%	3.2%
5	United States	19,109	5.4%	38.2%	5	Iraq	22,261	4.6%	38.1%	13.2%
6	Australia	12,074	3.4%	41.7%	6	Switzerland	17,773	3.7%	41.8%	-2.5%
7	Germany	11,472	3.3%	44.9%	7	Hong Kong	17,389	3.6%	45.4%	9.3%
8	Iran	11,111	3.2%	48.1%	8	Republic of Korea	16,113	3.3%	48.7%	5.5%
9	Nigeria	10,298	2.9%	51.0%	9	Indonesia	15,554	3.2%	51.9%	5.4%
10	Korea, South	9,938	2.8%	53.9%	10	Singapore	14,906	3.1%	55.0%	8.3%
25	Thailand	3,949	1.1%	82.2%	19	Viet Nam	7,452	1.5%	74.2%	25.1%
43	Myanmar	1,121	0.3%	93.5%	20	Thailand	7,044	1.5%	75.7%	6.6%
45	Viet Nam	997	0.3%	94.1%	45	Bangladesh	1,232	0.3%	93.6%	14.7%
59	Sri Lanka	520	0.1%	97.1%	50	Sri Lanka	994	0.2%	94.8%	7.5%
60	Nepal	507	0.1%	97.3%	60	Nepal	700	0.1%	96.4%	3.7%
64	Bangladesh	359	0.1%	97.7%	71	Myanmar	505	0.1%	97.8%	-8.5%
80	Bhutan	186	0.1%	98.9%	80	Bhutan	374	0.1%	98.6%	8.1%
122	Lao PDR	20	0.0%	99.9%	121	Cambodia	47	0.0%	99.8%	22.2%
142	Cambodia	8	0.0%	100.0%	168	Lao PDR	3	0.0%	100.0%	-20.3%
222	Heard & McDonald Is.	4.0E-06	0.0%	100.0%	220	Eritrea	6.1E-05	0.0%	100.0%	-63.6%

Source: Compiled based on Global Trade Atlas.

Table 2.3. Myanmar's Exports by Destination

2010					2018					CAGR 2010 →18
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	
-	World	8,873	100.0%	-	-	World	16,672	100.0%	-	8.2%
1	Thailand	3,180	35.8%	35.8%	1	China	5,560	33.3%	33.3%	46.6%
2	Hong Kong	1,592	17.9%	53.8%	2	Thailand	3,057	18.3%	51.7%	-0.5%
3	*Not Determined*	1,002	11.3%	65.1%	3	Japan	1,388	8.3%	60.0%	26.0%
4	India	958	10.8%	75.9%	4	India	574	3.4%	63.5%	-6.2%
5	Singapore	458	5.2%	81.0%	5	Hong Kong	567	3.4%	66.9%	-12.1%
6	Malaysia	433	4.9%	85.9%	6	Germany	505	3.0%	69.9%	n.a.
7	China	260	2.9%	88.8%	7	United States	492	3.0%	72.8%	80.2%
8	Japan	218	2.5%	91.3%	8	Singapore	490	2.9%	75.8%	0.9%
9	Korea, South	127	1.4%	92.7%	9	Repiblic of Korea	446	2.7%	78.5%	17.0%
10	Côte d'Ivoire	85	1.0%	93.7%	10	United Kingdom	423	2.5%	81.0%	36.4%
11	Bangladesh	81	0.9%	94.6%	14	Viet Nam	211	1.3%	87.9%	16.8%
13	Viet Nam	61	0.7%	96.0%	21	Bangladesh	99	0.6%	94.2%	2.6%
38	Sri Lanka	1	0.0%	99.9%	41	Sri Lanka	13	0.1%	98.6%	33.7%
70	Myanmar	1.2E-02	0.0%	100.0%	48	Cambodia	8	0.0%	99.0%	n.a.
72	Lao PDR	4.5E-03	0.0%	100.0%	54	Nepal	8	0.0%	99.3%	n.a.
					101	Myanmar	1.3E-01	0.0%	100.0%	35.1%
					125	Lao PDR	1.3E-02	0.0%	100.0%	14.5%
78	Angola	9.0E-06	0.0%	100.0%	138	East Timor	1.1E-04	0.0%	100.0%	n.a.

Source: Compiled based on Global Trade Atlas.

Table 2.4. Myanmar's Imports by Origin

2010					2018					CAGR 2010 →18
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	
-	World	4,866	100.0%	-	-	World	19,345	100.0%	-	18.8%
1	Singapore	1,122	23.1%	23.1%	1	China	6,223	32.2%	32.2%	26.3%
2	China	964	19.8%	42.9%	2	Singapore	3,692	19.1%	51.3%	16.1%
3	*Not Determined*	871	17.9%	60.8%	3	Thailand	2,595	13.4%	64.7%	23.9%
4	Thailand	468	9.6%	70.4%	4	India	990	5.1%	69.8%	25.4%
5	Republic of Korea	253	5.2%	75.6%	5	Indonesia	936	4.8%	74.6%	21.0%
6	Japan	217	4.5%	80.1%	6	Malaysia	815	4.2%	78.8%	25.2%
7	Indonesia	203	4.2%	84.2%	7	Japan	696	3.6%	82.4%	15.7%
8	India	162	3.3%	87.5%	8	Viet Nam	586	3.0%	85.5%	40.8%
9	Malaysia	135	2.8%	90.3%	9	Republic of Korea	440	2.3%	87.7%	7.2%
10	Australia	71	1.5%	91.8%	10	United States	325	1.7%	89.4%	37.8%
13	Viet Nam	38	0.8%	94.6%	30	Bangladesh	28	0.1%	98.4%	14.4%
22	Bangladesh	10	0.2%	98.1%	50	Sri Lanka	5	0.0%	99.6%	58.3%
51	Myanmar	3.4E-01	0.0%	99.9%	62	Cambodia	3	0.0%	99.8%	46.9%
65	Sri Lanka	1.3E-01	0.0%	100.0%	68	Lao PDR	2	0.0%	99.9%	179.7%
66	Cambodia	1.2E-01	0.0%	100.0%	126	Nepal	3.6E-02	0.0%	100.0%	n.a.
118	Lao PDR	4.0E-04	0.0%	100.0%						
121	Liberia	4.5E-05	0.0%	100.0%	183	Côte d'Ivoire	2.5E-05	0.0%	100.0%	n.a.

Source: Compiled based on Global Trade Atlas.

Table 2.5. Thailand's Exports by Destination

2010					2019				CAGR
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	2010 →19
-	World	195,293	100.0%	-	-	World	245,344	100.0%	-	2.6%
1	China	21,471	11.0%	11.0%	1	United States	31,290	12.8%	12.8%	5.0%
2	Japan	20,413	10.5%	21.4%	2	China	29,021	11.8%	24.6%	3.4%
3	United States	20,205	10.3%	31.8%	3	Japan	24,468	10.0%	34.6%	2.0%
4	Hong Kong	13,132	6.7%	38.5%	4	Viet Nam	12,060	4.9%	39.5%	8.4%
5	Malaysia	10,565	5.4%	43.9%	5	Hong Kong	11,693	4.8%	44.2%	-1.3%
6	Australia	9,367	4.8%	48.7%	6	Malaysia	10,415	4.2%	48.5%	-0.2%
7	Singapore	9,015	4.6%	53.3%	7	Australia	10,151	4.1%	52.6%	0.9%
8	Indonesia	7,344	3.8%	57.1%	8	Indonesia	9,046	3.7%	56.3%	2.3%
9	Viet Nam	5,844	3.0%	60.1%	9	Singapore	8,763	3.6%	59.9%	-0.3%
10	Philippines	4,885	2.5%	62.6%	10	India	7,306	3.0%	62.9%	5.8%
11	India	4,393	2.2%	64.8%	11	Cambodia	7,122	2.9%	65.8%	13.2%
19	Cambodia	2,339	1.2%	78.5%	17	Myanmar	4,352	1.8%	78.2%	8.6%
20	Lao PDR	2,134	1.1%	79.6%	19	Lao PDR	3,838	1.6%	81.4%	6.7%
22	Myanmar	2,072	1.1%	81.8%	33	Bangladesh	982	0.4%	92.2%	1.1%
34	Bangladesh	886	0.5%	89.9%	48	Sri Lanka	375	0.2%	95.9%	-0.7%
49	Sri Lanka	401	0.2%	94.6%	87	Nepal	102	0.0%	98.9%	4.3%
98	Nepal	70	0.0%	99.1%	113	Bhutan	43	0.0%	99.6%	14.1%
142	Bhutan	13	0.0%	99.8%						
231	Falkland Islands	3.1E-04	0.0%	100.0%	246	Heard & McDonald Is.	3.8E-05	0.0%	100.0%	-38.5%

Source: Compiled based on Global Trade Atlas.

Table 2.6. Thailand's Imports by Origin

2010					2019				CAGR
Rank	Country	US$ mil.	Share	Cumurative Share	Rank	Country	US$ mil.	Share	Cumurative Share	2010 →19
-	World	184,536	100.0%	-	-	World	239,980	100.0%	-	3.0%
1	Japan	38,305	20.8%	20.8%	1	China	50,980	21.2%	21.2%	8.5%
2	China	24,517	13.3%	34.0%	2	Japan	33,641	14.0%	35.3%	-1.4%
3	Malaysia	10,832	5.9%	39.9%	3	United States	17,596	7.3%	42.6%	5.6%
4	United States	10,805	5.9%	45.8%	4	Malaysia	13,081	5.5%	48.0%	2.1%
5	UAE	8,752	4.7%	50.5%	5	Republic of Korea	8,740	3.6%	51.7%	0.8%
6	Republic of Korea	8,163	4.4%	54.9%	6	Taiwan	8,129	3.4%	55.1%	1.8%
7	Taiwan	6,895	3.7%	58.7%	7	Singapore	7,756	3.2%	58.3%	2.2%
8	Singapore	6,366	3.4%	62.1%	8	UAE	7,538	3.1%	61.4%	-1.6%
9	Australia	5,970	3.2%	65.4%	9	Indonesia	7,341	3.1%	64.5%	2.8%
10	Indonesia	5,742	3.1%	68.5%	10	Germany	6,358	2.6%	67.2%	3.5%
15	Myanmar	2,848	1.5%	80.2%	12	Viet Nam	5,529	2.3%	71.9%	16.4%
18	Thailand	2,308	1.3%	84.1%	13	India	4,879	2.0%	73.9%	8.8%
19	India	2,279	1.2%	85.3%	15	Thailand	3,723	1.6%	77.2%	5.5%
26	Viet Nam	1,414	0.8%	91.9%	18	Myanmar	3,284	1.4%	81.5%	1.6%
30	Lao PDR	758	0.4%	93.7%	23	Lao PDR	2,569	1.1%	87.5%	14.5%
51	Cambodia	217	0.1%	98.4%	25	Cambodia	2,300	1.0%	89.5%	30.0%
61	Sri Lanka	84	0.0%	99.0%	71	Bangladesh	82	0.0%	99.2%	14.2%
90	Bangladesh	25	0.0%	99.7%	74	Sri Lanka	80	0.0%	99.3%	-0.5%
170	Nepal	3.5E-01	0.0%	100.0%	173	Nepal	1	0.0%	100.0%	5.5%
189	Bhutan	1.3E-01	0.0%	100.0%	194	Bhutan	1.4E-01	0.0%	100.0%	1.0%
235	Tonga	4.0E-06	0.0%	100.0%	245	St. Helena	7.0E-06	0.0%	100.0%	n.a.

Source: Compiled based on Global Trade Atlas.

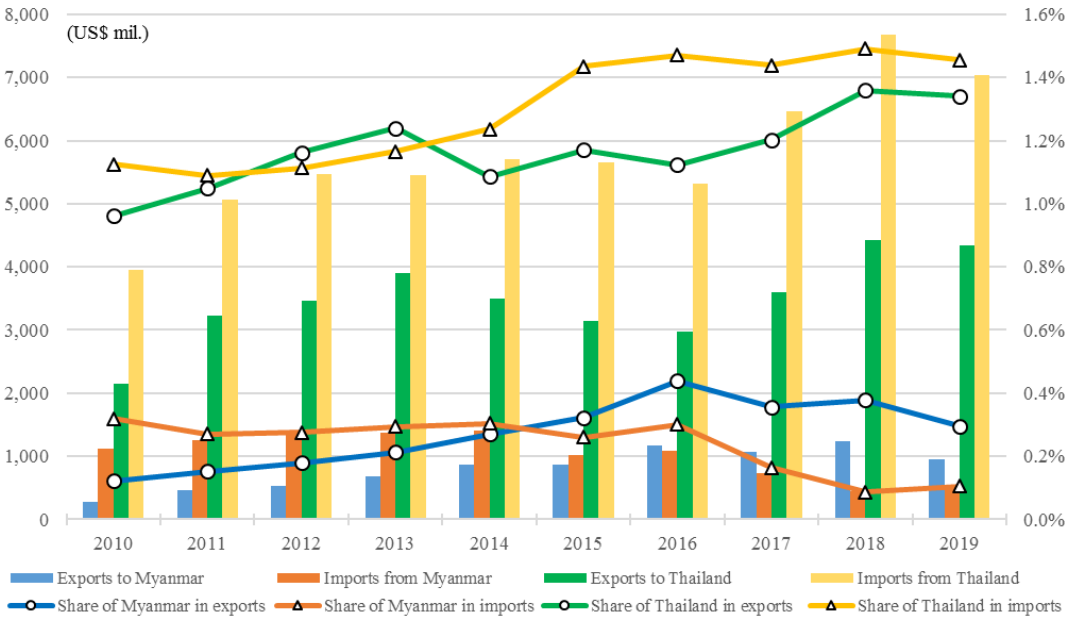
2.2. International Trade amongst India, Myanmar, and Thailand

This subsection focuses explicitly on the trade connectivity amongst India, Myanmar, and Thailand.

(1) India's Trade with Myanmar and Thailand

As discussed in the previous subsection, India's exports and imports grew at CAGRs of 4.2% and 3.6%, respectively, between 2010 and 2019, and an important characteristic of India is its large and expanding trade deficit. India's trade with Thailand shares this trend, and the trade deficit expanded from US$1,804 million in 2010 to US$2,698 million in 2019 (Figure 2.2). On the other hand, India's trade balance with Myanmar turned from a deficit to a surplus of US$75 million in 2016, and the surplus has continued since then, mainly because of decreasing imports from Myanmar.

Figure 2.2. India's Trade with Myanmar and Thailand



Source: Compiled based on Global Trade Atlas.

Tables 2.7 to 2.10 presents India's exports to and imports from Myanmar and Thailand by the top-10 broad categories of commodities at the HS 2-digit level[1]. The first row of the rightmost column presents the CAGR of total exports or imports to the partner country. The subsequent rows show the contribution rate of each product category, which adds up to 100.0%.

India's major export items to Myanmar are pharmaceutical products (HS-30) and meat and edible meat offal (HS-02), followed by machinery (HS-84) and electrical machinery (HS-85) (Table 2.7). Exports of pharmaceutical products to Myanmar increased more rapidly than total exports to Myanmar, resulting in an increase in the share from 20.9% (2nd) in 2010 to 23.1% (1st) in 2019. Exports of meat and edible meat offal increased but at a slower rate than total exports, and the share halved from 24.1% (1st) in 2010 to 11.5% (2nd) in 2019. Another important export item is transport equipment (HS-87), the share of which increased from 2.0% (12th) in 2010 to 6.5% (5th) in 2019.

Table 2.7. India's Exports to Myanmar

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	273.3	100.0%	-	Total	956.3	100.0%	-	14.9%
02	65.8	24.1%	24.1%	30	221.2	23.1%	23.1%	24.0%
30	57.0	20.9%	45.0%	02	110.0	11.5%	34.6%	6.5%
72	18.7	6.8%	51.8%	84	69.6	7.3%	41.9%	8.2%
85	16.6	6.1%	57.9%	85	64.5	6.7%	48.7%	7.0%
84	13.8	5.1%	63.0%	87	62.6	6.5%	55.2%	8.4%
23	10.2	3.7%	66.7%	52	45.9	4.8%	60.0%	5.3%
52	10.0	3.6%	70.4%	23	37.0	3.9%	63.9%	3.9%
17	8.7	3.2%	73.6%	27	35.4	3.7%	67.6%	4.8%
39	8.2	3.0%	76.6%	72	25.5	2.7%	70.2%	1.0%
40	7.8	2.9%	79.4%	93	22.2	2.3%	72.6%	3.2%

Source: Compiled based on Global Trade Atlas.

[1] The list of HS 2-digit classifications is provided in Appendix Table 2.1 at the end of this chapter.

Table 2.8. India's Imports from Myanmar

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	1,121.0	100.0%	-	Total	505.3	100.0%	-	-8.5%
07	663.0	59.1%	59.1%	07	343.2	67.9%	67.9%	-51.9%
44	429.7	38.3%	97.5%	44	79.8	15.8%	83.7%	-56.8%
05	12.3	1.1%	98.6%	79	14.6	2.9%	86.6%	2.4%
41	4.3	0.4%	99.0%	40	10.9	2.2%	88.8%	1.5%
09	3.1	0.3%	99.2%	03	9.7	1.9%	90.7%	1.5%
17	2.2	0.2%	99.4%	10	9.0	1.8%	92.4%	1.5%
40	1.8	0.2%	99.6%	09	8.0	1.6%	94.0%	0.8%
08	0.9	0.1%	99.7%	78	6.3	1.2%	95.3%	1.0%
12	0.5	0.0%	99.7%	12	6.3	1.2%	96.5%	0.9%
99	0.5	0.0%	99.8%	62	2.7	0.5%	97.1%	0.4%

Source: Compiled based on Global Trade Atlas.

India's imports from Myanmar are more concentrated in a limited number of items, namely edible vegetables (HS-07) and wood and articles of wood (HS-44) (Table 2.8). Despite the high shares, imports of these items from Myanmar decreased significantly during the last decade being the major cause of the shrink in India's imports from Myanmar.

Table 2.9. India's Exports to Thailand

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	2,144.9	100.0%	-	Total	4,346.6	100.0%	-	8.2%
71	339.7	15.8%	15.8%	84	701.5	16.1%	16.1%	23.5%
74	286.6	13.4%	29.2%	71	656.5	15.1%	31.2%	14.4%
84	183.1	8.5%	37.7%	87	276.9	6.4%	37.6%	4.5%
87	178.1	8.3%	46.0%	29	270.5	6.2%	43.8%	6.6%
29	124.9	5.8%	51.9%	03	218.9	5.0%	48.9%	5.7%
23	111.4	5.2%	57.1%	72	173.4	4.0%	52.9%	3.3%
72	100.8	4.7%	61.8%	85	146.5	3.4%	56.2%	2.7%
03	94.0	4.4%	66.1%	27	145.3	3.3%	59.6%	4.7%
85	87.2	4.1%	70.2%	09	130.0	3.0%	62.6%	5.5%
52	68.5	3.2%	73.4%	30	122.3	2.8%	65.4%	3.7%

Source: Compiled based on Global Trade Atlas.

Table 2.10. India's Imports from Thailand

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	3,948.7	100.0%	-	Total	7,044.4	100.0%	-	6.6%
84	909.4	23.0%	23.0%	84	1,320.3	18.7%	18.7%	13.3%
39	457.4	11.6%	34.6%	85	906.3	12.9%	31.6%	17.1%
85	377.2	9.6%	44.2%	39	847.0	12.0%	43.6%	12.6%
29	336.7	8.5%	52.7%	71	567.4	8.1%	51.7%	14.0%
40	303.3	7.7%	60.4%	29	528.0	7.5%	59.2%	6.2%
87	189.7	4.8%	65.2%	87	445.3	6.3%	65.5%	8.3%
71	135.3	3.4%	68.6%	74	286.7	4.1%	69.6%	8.0%
76	123.8	3.1%	71.7%	40	286.3	4.1%	73.6%	-0.5%
26	109.8	2.8%	74.5%	38	159.8	2.3%	75.9%	4.3%
17	109.3	2.8%	77.3%	72	145.5	2.1%	78.0%	2.2%

Source: Compiled based on Global Trade Atlas.

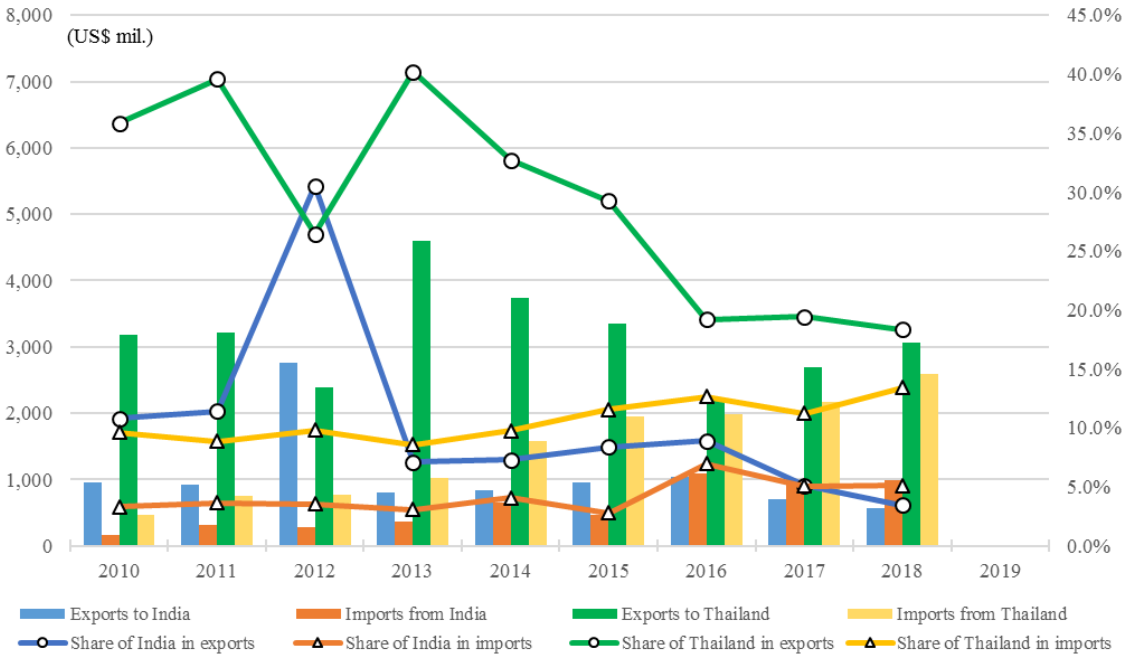
India's exports to Thailand are more diversified than those to Myanmar. In 2019, the top-two export items were machinery (HS-84) (16.1%) and jewellery (HS-71) (15.1%), followed by transport equipment (HS-87) (6.4%), organic chemicals (HS-29) (6.2%), and fish (HS-03) (5.0%) (Table 2.9). On the import side, machinery (HS-84) has been the most important category, with shares of 23.0% (1st) in 2010 and 18.7% (1st) in 2019 (Table 2.10). In terms of the contribution to India's export growth to Thailand, electrical machinery (HS-85) was the highest, followed by jewellery (HS-71). Plastics and articles thereof (HS-39) is another important import item from Thailand, which comprised 11.6% (2nd) in 2010 and 12.0% (3rd) in 2019.

(2) Myanmar's Trade with India and Thailand

Myanmar's CAGRs of exports and imports between 2010 and 2018 were 8.2% and 18.8% respectively. Because of the significantly higher increasing rate of imports than exports, Myanmar's trade balance turned from a surplus to a deficit (Figure 2.1).

Thailand and India have been very important trade partners for Myanmar. Except for extraordinary values recorded in 2012, exports to Thailand and India in terms of value have been fluctuating without any significant upward or downward trend. Reflecting the growth of Myanmar's total exports, the shares of Thailand and India have been declining (Figure 2.3). In contrast, Myanmar's imports from Thailand and India have been steadily increasing in terms of both value and share.

Figure 2.3. Myanmar's Trade with India and Thailand



Source: Compiled based on Global Trade Atlas.

Myanmar's declining exports to India have been comprised of a limited number of items, namely edible vegetables (HS-07), edible fruits and nuts (HS-08), and wood and articles of wood (HS-44) (Table 2.11). The shares of these three categories in 2019 were 48.6%, 20.6%, and 16.4%, respectively, amounting to 85.6% of Myanmar's total exports to India. In contrast, Myanmar's imports from India have grown rapidly at a CAGR of 25.4 % between 2010 and 2019. In terms of product category, the increase was contributed mainly by sugar and sugar confectionary (HS-17), mineral fuels (HS-27), and pharmaceutical products (HS-30) (Table 2.12). In 2019, the three categories comprised 16.3% (2nd), 15.0% (3rd), and 20.6% (1st) of Myanmar's imports from India, respectively.

Table 2.11. Myanmar's Exports to India

2010				2018				2010 →18
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	958.2	100.0%	-	Total	574.1	100.0%	-	-6.2%
07	586.6	61.2%	61.2%	07	278.9	48.6%	48.6%	-80.1%
44	335.5	35.0%	96.2%	08	118.2	20.6%	69.2%	30.8%
99	16.8	1.8%	98.0%	44	94.4	16.4%	85.6%	-62.8%
17	8.4	0.9%	98.9%	79	13.5	2.4%	88.0%	3.5%
05	2.8	0.3%	99.2%	40	8.4	1.5%	89.4%	1.9%
41	1.9	0.2%	99.4%	24	7.6	1.3%	90.7%	2.0%
10	1.5	0.2%	99.5%	72	7.3	1.3%	92.0%	1.9%
40	1.2	0.1%	99.6%	64	6.6	1.2%	93.2%	1.7%
52	0.9	0.1%	99.7%	09	5.7	1.0%	94.2%	1.3%
09	0.8	0.1%	99.8%	76	4.4	0.8%	94.9%	1.2%

Source: Compiled based on Global Trade Atlas.

Table 2.12. Myanmar's Imports from India

2010				2018				2010 →18
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	161.5	100.0%	-	Total	990.2	100.0%	-	25.4%
30	64.0	39.6%	39.6%	30	204.2	20.6%	20.6%	16.9%
72	22.4	13.8%	53.5%	17	161.6	16.3%	36.9%	19.4%
84	8.5	5.3%	58.7%	27	148.8	15.0%	52.0%	17.9%
85	8.2	5.1%	63.8%	87	59.8	6.0%	58.0%	6.8%
39	7.6	4.7%	68.5%	84	55.9	5.6%	63.6%	5.7%
52	7.0	4.4%	72.9%	72	52.9	5.3%	69.0%	3.7%
40	4.8	3.0%	75.8%	85	52.8	5.3%	74.3%	5.4%
73	4.3	2.6%	78.5%	23	33.7	3.4%	77.7%	3.9%
87	3.5	2.2%	80.7%	10	22.5	2.3%	80.0%	2.7%
33	2.5	1.6%	82.2%	31	21.2	2.1%	82.1%	2.6%

Source: Compiled based on Global Trade Atlas.

Table 2.13. Myanmar's Exports to Thailand

2010				2018				2010 →18
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	3,179.6	100.0%	-	Total	3,056.9	100.0%	-	-0.5%
27	2,936.0	92.3%	92.3%	27	2,319.2	75.9%	75.9%	-502.5%
71	83.5	2.6%	95.0%	03	273.3	8.9%	84.8%	221.1%
44	79.3	2.5%	97.5%	74	139.6	4.6%	89.4%	102.8%
07	49.9	1.6%	99.0%	84	109.0	3.6%	92.9%	88.8%
74	13.5	0.4%	99.5%	90	43.1	1.4%	94.4%	35.1%
99	6.8	0.2%	99.7%	62	32.3	1.1%	95.4%	26.1%
52	3.5	0.1%	99.8%	12	25.3	0.8%	96.2%	20.2%
03	1.9	0.1%	99.8%	85	14.8	0.5%	96.7%	12.1%
10	1.3	0.0%	99.9%	44	14.5	0.5%	97.2%	-52.8%
04	0.8	0.0%	99.9%	07	10.5	0.3%	97.5%	-32.1%

Source: Compiled based on Global Trade Atlas.

Table 2.14. Myanmar's Imports from Thailand

2010				2018				2010 →18
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	467.8	100.0%	-	Total	2,595.1	100.0%	-	23.9%
89	169.1	36.1%	36.1%	17	345.8	13.3%	13.3%	16.2%
25	78.7	16.8%	53.0%	87	325.5	12.5%	25.9%	15.0%
39	40.6	8.7%	61.6%	84	262.3	10.1%	36.0%	11.2%
85	34.7	7.4%	69.0%	89	221.9	8.6%	44.5%	2.5%
84	24.8	5.3%	74.4%	27	183.3	7.1%	51.6%	7.7%
27	18.9	4.0%	78.4%	39	141.0	5.4%	57.0%	4.7%
30	15.6	3.3%	81.7%	85	111.3	4.3%	61.3%	3.6%
70	9.1	2.0%	83.7%	21	88.5	3.4%	64.7%	4.0%
87	7.0	1.5%	85.2%	22	79.0	3.0%	67.8%	3.7%
40	6.3	1.3%	86.5%	31	62.8	2.4%	70.2%	2.7%

Source: Compiled based on Global Trade Atlas.

Myanmar's exports to Thailand have long been dominated by liquefied natural gas (LNG) (HS-271111) under the broad category of mineral fuels (HS-27) (Table 2.13).[2] In terms of the

[2] In 2018, Myanmar's exports of HS-271111 to Thailand totalled US$2,261 million, which comprises 97.5% of Myanmar's exports of HS-27 to Thailand.

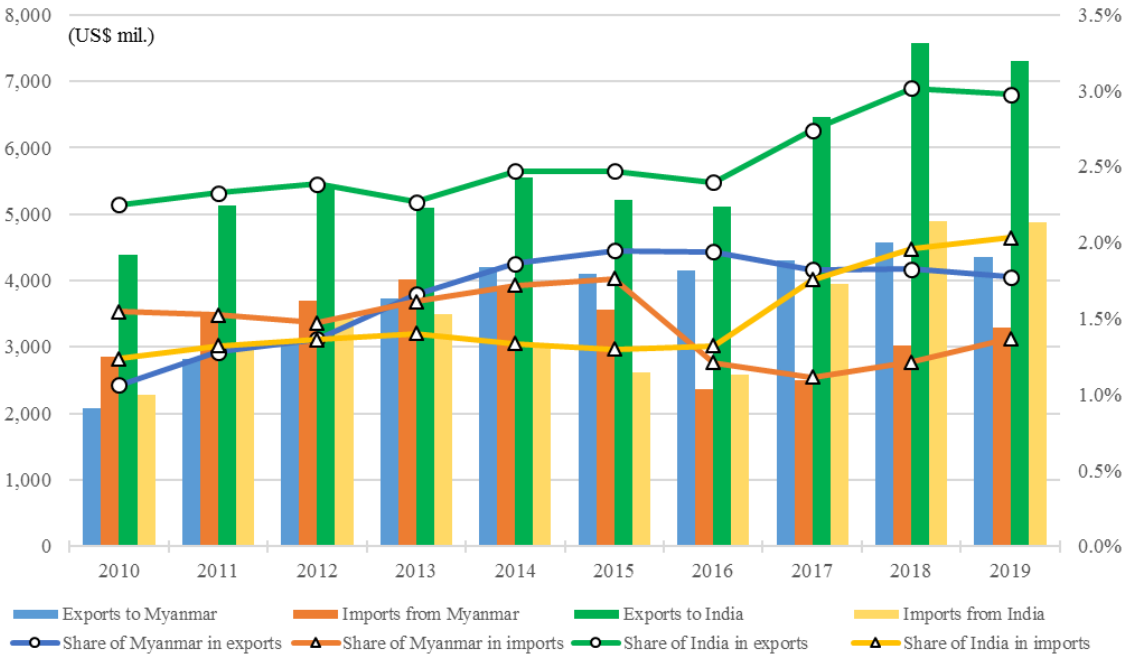
contribution to the growth of Myanmar's exports to Thailand, fish (HS-03), copper (HS-74), and machinery (HS-84) have been growing as important export items to Thailand. Myanmar's imports from Thailand are more diversified than its exports, and they have become more diversified during the last decade. In 2019, the top-five categories imported from Thailand were sugars and sugar confectionary (HS-17), transport machinery (HS-87), machinery (HS-84), ships and boats (HS-89), and mineral fuels (HS-27), and their shares were 13.3%, 12.5%, 10.1%, 8.6%, and 7.1%, respectively. More than 70% of Myanmar's imports of HS-27 from Thailand are comprised of imports of petroleum oils (HS-271019). The increase in Myanmar's exports of machinery-related products (HS-84 and HS-85) to Thailand, which have been important items imported from Thailand, may imply the start of back-and-forth production activities across the border of Myanmar and Thailand.

(3) Thailand's Trade with India and Myanmar

Thailand's exports and imports grew at CAGRs of 2.6% and 3.0%, respectively, between 2010 and 2019. In contrast to India, which is characterised by large and expanding trade deficits, the exports and imports of Thailand have been relatively balanced, with a moderate degree of surplus (Figure 2.1).

As illustrated in Figure 2.4, the share of India in Thailand's exports and imports has exhibited an upward trend, particularly since 2017. In contrast, the share of Myanmar, which used to be rising until 2015, started to decline since then. Thailand has continuously exported to India more than it has imported from India. Trade with Myanmar was in deficit until 2014, but has turned to a surplus since then mainly because of the decrease in imports from Myanmar.

Figure 2.4. Thailand's Trade with India and Myanmar



Source: Compiled based on Global Trade Atlas.

Table 2.15. Thailand's Exports to India

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	4,392.9	100.0%	-	Total	7,305.7	100.0%	-	5.8%
84	1,097.7	25.0%	25.0%	84	1,299.9	17.8%	17.8%	6.9%
39	524.9	11.9%	36.9%	39	835.3	11.4%	29.2%	10.7%
29	373.3	8.5%	45.4%	85	831.9	11.4%	40.6%	16.1%
85	363.1	8.3%	53.7%	71	669.5	9.2%	49.8%	14.9%
40	325.0	7.4%	61.1%	29	495.1	6.8%	56.6%	4.2%
87	264.5	6.0%	67.1%	87	428.7	5.9%	62.4%	5.6%
71	236.6	5.4%	72.5%	40	335.6	4.6%	67.0%	0.4%
17	169.6	3.9%	76.4%	74	275.0	3.8%	70.8%	8.2%
76	130.9	3.0%	79.3%	73	162.4	2.2%	73.0%	2.6%
72	95.1	2.2%	81.5%	91	149.6	2.0%	75.1%	5.1%

Source: Compiled based on Global Trade Atlas.

Table 2.16. Thailand's Imports from India

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	2,279.1	100.0%	-	Total	4,879.0	100.0%	-	8.8%
71	330.8	14.5%	14.5%	71	1,018.6	20.9%	20.9%	26.5%
84	237.7	10.4%	24.9%	84	759.2	15.6%	36.4%	20.1%
85	193.1	8.5%	33.4%	87	302.1	6.2%	42.6%	6.2%
72	170.3	7.5%	40.9%	29	299.8	6.1%	48.8%	6.0%
29	144.5	6.3%	47.2%	03	236.6	4.9%	53.6%	5.4%
87	141.0	6.2%	53.4%	85	214.1	4.4%	58.0%	0.8%
23	124.0	5.4%	58.9%	72	186.7	3.8%	61.8%	0.6%
74	113.8	5.0%	63.8%	30	150.8	3.1%	64.9%	3.1%
03	95.0	4.2%	68.0%	09	149.0	3.1%	68.0%	5.6%
52	76.4	3.4%	71.4%	38	116.7	2.4%	70.4%	2.3%

Source: Compiled based on Global Trade Atlas.

Thailand has strong trade connectivity with India in the manufacturing sector. Typical manufacturing products, namely machinery (HS-84), electrical machinery (HS-85), and transport equipment (HS-87), comprised 39.3% of Thailand's exports to India in 2010 and maintained a high level of 35.0% in 2019 (Table 2.15). The combined share of these sectors was 25.1% of Thailand's imports from India, and this increased to 26.1% in 2019 (Table 2.16). In addition, Thailand also exports various industrial materials to India. The sum of the shares of plastics (HS-39), rubber (HS-40), and organic chemicals (HS-29) was 27.8% in 2010 and 22.8% in 2019.[3] On the other hand, jewellery (HS-72) has been the most important import item from India, comprising 14.5% (1st) in 2010 and 20.9% (1st) in 2019.

[3] In 2018, Thailand's exports of HS-29 to India consists of terephthalic acid (HS-291736) (28.9%), which is often used in the production of plastic bottles and apparels; phenol (HS-290711) (15.5%), which is often used in the production of plastic and/or pharmaceutical products; and toluene (HS-290230) (13.3%), which is often used to solve various chemical materials, amongst others.

Table 2.17. Thailand's Exports to Myanmar

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	2,072.0	100.0%	-	Total	4,352.2	100.0%	-	8.6%
27	328.2	15.8%	15.8%	27	509.8	11.7%	11.7%	8.0%
22	155.8	7.5%	23.4%	22	359.0	8.2%	20.0%	8.9%
25	153.8	7.4%	30.8%	84	344.6	7.9%	27.9%	10.5%
21	127.5	6.2%	36.9%	87	266.8	6.1%	34.0%	7.0%
87	107.5	5.2%	42.1%	85	256.4	5.9%	39.9%	6.6%
85	106.9	5.2%	47.3%	39	186.4	4.3%	44.2%	3.8%
84	104.5	5.0%	52.3%	21	163.9	3.8%	48.0%	1.6%
39	99.5	4.8%	57.1%	73	138.4	3.2%	51.1%	4.0%
72	65.5	3.2%	60.3%	19	130.9	3.0%	54.1%	3.0%
19	62.7	3.0%	63.3%	30	105.3	2.4%	56.6%	2.8%

Source: Compiled based on Global Trade Atlas.

Table 2.18. Thailand's Imports from Myanmar

2010				2019				2010 →19
HS	US$ mil.	Share	Cumulative Share	HS	US$ mil.	Share	Cumulative Share	CAGR and Contribution
Total	2,848.2	100.0%	-	Total	3,283.9	100.0%	-	1.6%
27	2,627.1	92.2%	92.2%	27	2,485.0	75.7%	75.7%	-32.6%
44	73.4	2.6%	94.8%	03	167.6	5.1%	80.8%	23.2%
03	66.7	2.3%	97.2%	10	139.3	4.2%	85.0%	31.7%
07	26.3	0.9%	98.1%	74	133.1	4.1%	89.1%	26.6%
74	17.2	0.6%	98.7%	01	51.9	1.6%	90.7%	10.7%
64	6.3	0.2%	98.9%	85	41.3	1.3%	91.9%	9.5%
01	5.5	0.2%	99.1%	12	36.8	1.1%	93.0%	8.3%
52	4.0	0.1%	99.2%	07	31.7	1.0%	94.0%	1.3%
94	2.4	0.1%	99.3%	23	29.7	0.9%	94.9%	6.5%
05	2.3	0.1%	99.4%	44	27.7	0.8%	95.7%	-10.5%

Source: Compiled based on Global Trade Atlas.

Thailand's exports to Myanmar have been highly diversified, in contrast with Thailand's import from Myanmar, in which LNG in mineral fuels (HS-27) comprises a large part (Tables 2.17 and 2.18). The top category of Thailand's exports to Myanmar is also mineral fuels (HS-27), but most of this is petroleum oil (HS-271019) as already mentioned above. Thailand has also exported food and beverages to Myanmar. The combined share of beverages (HS-22), miscellaneous edible preparations (HS-21), and preparations of cereals (HS-19) was 16.7% in 2010 and remained at 15.0% in 2019. Another trend in Thailand's exports to Myanmar is the increase in machinery products. The combined share of machinery (HS-84), electrical machinery (HS-85), and transport equipment (HS-87) increased from 15.4% in 2010 to 19.9% in 2019.

2.3. Border Trade amongst India, Myanmar, and Thailand

The original alignment of the Trilateral Highway (TLH) starts at Moreh in the Manipur State of India, crosses Myanmar from northwest to southeast passing Mandalay and Yangon, and ends at Mae Sot in Tak province of Thailand. Thus, the major part of the TLH is the road network in Myanmar, together with border-crossing facilities at two terminals, from Tamu to Moreh and from Myawaddy to Mae Sot. Given this configuration, Myanmar's border trade with India and Thailand is expected to shed light on the actual utilisation of the TLH.

Table 2.19 illustrates a different aspect of Myanmar's international trade with its neighbouring countries, namely India, Thailand, and China, based on the trade statistics released by the Ministry of Commerce. As already discussed, Myanmar has rapidly expanded its international trade since 2011. Total exports increased at a CAGR of 11.4% from US$8,977 million in FY2012 to US$17,127 million in FY2018, and total imports increased at a CAGR of 12.9% from US$9,069 million in FY2012 to US$18,824 million in FY2018. A large part, 39.1% for exports and 35.0% for imports, of this rapid growth is explained by the increase in trade with China, the biggest trading partner for Myanmar. During the same 6-year period, exports to China increased at a CAGR of 15.9%, from US$2,238 million to US$5,429 million (2.4 times), resulting in an increase in the share from 24.9% to 31.7%. In contrast, Myanmar's exports to Thailand and India decreased significantly. The decrease in exports to Thailand and India was due to the shrink in normal trade, whereas the border trade has been expanding at CAGRs of 38.9% and 63.2%, respectively.

Table 2.19. Myanmar's International Trade with Neighbouring Countries

		FY2012		FY2015		'FY2018'		FY2012→'FY2018' Change	FY2012→'FY2018' Contribution
		US$ mil.	%	US$ mil.	%	US$ mil.	%	Times	%
Exports	**Total**	**8,977**	**100.0**	**11,137**	**100.0**	**17,127**	**100.0**	**1.9**	**100.0**
	China	2,238	24.9	4,597	41.3	5,429	31.7	2.4	39.1
	Thailand	4,001	44.6	2,893	26.0	3,131	18.3	0.8	-10.7
	India	1,019	11.3	904	8.1	630	3.7	0.6	-4.8
	Normal: Subtotal	**6,843**	**76.2**	**6,588**	**59.2**	**10,615**	**62.0**	**1.6**	**46.3**
	China	341	3.8	361	3.2	915	5.3	2.7	7.0
	Thailand	3,776	42.1	2,644	23.7	1,515	8.8	0.4	-27.7
	India	1,010	11.2	851	7.6	462	2.7	0.5	-6.7
	Border: Subtotal	**2,134**	**23.8**	**4,549**	**40.8**	**6,513**	**38.0**	**3.1**	**53.7**
	China	1,897	21.1	4,236	38.0	4,514	26.4	2.4	32.1
	: Muse	1,816	20.2	3,810	34.2	3,735	21.8	2.1	23.5
	Thailand	225	2.5	250	2.2	1,616	9.4	7.2	17.1
	: Myawaddy	56	0.6	44	0.4	114	0.7	2.0	0.7
	India	9	0.1	53	0.5	167	1.0	18.9	1.9
	: Tamu	7	0.1	33	0.3	121	0.7	16.4	1.4
Imports	**Total**	**9,069**	**100.0**	**16,578**	**100.0**	**18,824**	**100.0**	**2.1**	**100.0**
	China	2,719	30.0	6,395	38.6	6,137	32.6	2.3	35.0
	Thailand	697	7.7	1,973	11.9	2,474	13.1	3.6	18.2
	India	302	3.3	807	4.9	953	5.1	3.2	6.7
	Normal: Subtotal	**7,830**	**86.3**	**13,973**	**84.3**	**15,844**	**84.2**	**2.0**	**82.1**
	China	1,678	18.5	4,694	28.3	4,345	23.1	2.6	27.3
	Thailand	503	5.5	1,089	6.6	1,372	7.3	2.7	8.9
	India	299	3.3	789	4.8	931	4.9	3.1	6.5
	Border: Subtotal	**1,239**	**13.7**	**2,605**	**15.7**	**2,980**	**15.8**	**2.4**	**17.9**
	China	1,041	11.5	1,701	10.3	1,792	9.5	1.7	7.7
	: Muse	1,014	11.2	1,568	9.5	1,699	9.0	1.7	7.0
	Thailand	194	2.1	884	5.3	1,101	5.9	5.7	9.3
	: Myawaddy	89	1.0	682	4.1	754	4.0	8.5	6.8
	India	3	0.0	19	0.1	23	0.1	7.1	0.2
	: Tamu	2	0.0	13	0.1	2	0.0	1.1	0.0

Note: Myanmar changed its fiscal year from April–March to January–December since 2018. 'FY2018' in the table refers to 12 months from April 2018 to March 2019 to facilitate the comparison.
Source: Ministry of Commerce, Myanmar.

The current status of Myanmar's border trade with China, India, and Thailand reveals important trends. Border trade constitutes 38.0% of Myanmar's total exports, and 69.3% of it is to China, followed by Thailand (24.8%) and India (2.6%) in FY2018. On the import side, border trade constitutes only 15.8% of total imports, and 60.1% of it is from China, followed by Thailand (37.0%) and India (0.8%). It is clear that border trade with India is still very small in comparison with that with China and Thailand. Although border trade with India has been increasing more rapidly than that with China and Thailand, the contribution rates are much smaller than the other two countries.

Myanmar's imports from India from the Tamu–Moreh border recorded a sharp decline from US$13 million in FY2015 to US$2 million in FY2018. According to the official statistics, Myanmar's biggest border checkpoint for imports from India is now Rihkhawdar–Zokhawthar (US$21 million). In contrast, the Tamu–Moreh border has been expanding as an important gateway for Myanmar's exports to India. Myanmar's exports to India through the Tamu–Moreh border increased steadily from US$7 million in FY2012 to US$33 million in FY2015 and US$121 million in FY2018.

Myanmar's exports to Thailand through the Myawaddy–Mae Sot border decreased from US$56 million in FY2012 to US$44 million in FY2015, and then increased rapidly to US$114 million in FY2018. This turnaround may be explained by the opening of the Myawaddy−Kawkareik bypass in 2015 with the assistance of Thailand. As Kudo (2013) points out, the rapid increase in Myanmar's border trade with China was supported by improvements in road infrastructure. A 460 km section between Muse and Mandalay was expanded and paved under build–operate–transfer (BOT) contracts with domestic private companies in 1998, followed by the development of the trunk route connecting Mandalay and Yangon in 2003. In addition, border-crossing facilities have been developed on both sides of the Muse–Ruili border. These are important cases for the development of physical infrastructure in enhancing trade connectivity along the transport corridor. However, it is also important to note that the development of physical infrastructure is clearly a facilitating factor but not a sufficient condition for enhancing trade connectivity. It is also important to pay enough attention to the role of institutional arrangements and other fundamental issues, including the income level, industrial structures, geographical conditions, and economic complementarity.

Table 2.20. Discrepancies in Border Trade Statistics (US$ mil.)

Border		FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	Correlation
Tamu(M) Moreh(I)	Myanmar's exports to India	7.4	15.8	33.1	32.8	38.5	42.8	-0.67
	India's imports from Myanmar	20.6	48.5	15.9	15.9	17.0	0.0	
	Myanmar's imports from India	1.7	9.8	12.6	12.8	10.1	3.5	-0.51
	India's exports to Myanmar	27.2	14.5	5.2	2.9	0.1	0.1	
Myawaddy(M) Mae Sot (T)	Myanmar's exports to Thailand	55.8	49.1	32.9	43.8	60.2	82.8	0.53
	Thailand's imports from Myanmar	37.0	77.6	96.0	117.4	125.2	167.8	
	Myanmar's imports from Thailand	89.0	222.4	424.0	682.3	871.5	859.4	0.99
	Thailand's exports to Myanmar	1,082.1	1,280.9	1,538.3	1,851.3	2,386.2	2,397.1	

Note: The fiscal year in Myanmar and India is from April to March, while in Thailand it is from October to September.

Source: (Myanmar) Ministry of Commerce, (India) Land Custom Station at Moreh, and (Thailand) compiled by JETRO Bangkok based on the original data provided by the Thai Customs Department.

The quality or accuracy of trade statistics is another important issue to be addressed in order to enable evidence-based policy making. For example, Myanmar's exports to India at Tamu must mirror India's imports from Myanmar at Moreh by definition.[4] However, this is not the case, as illustrated in Table 2.20 where the correlation coefficient for the latest six years is –0.67.[5] Trade statistics from Myanmar and Thailand show a positive correlation but the magnitude of the data is significantly different. There are cases where exports are registered officially, while the counterpart does not report its imports in order to evade import tariffs or other forms of restrictions.[6] Another reason was also implied by a comment from a border trade officer at Myawaddy saying that getting rid of illicit trade 'is not an easy task because Myanmar considers border trades only at the new friendship bridge trade centre and border trade zone legal, but over 30 border gates (mostly managed by ethnic armed groups such as Kayin State Border Guard Force – BGF, Karen National Union – KNU and Democratic Karen Benevolent Army – DKBA) along the Moei river are regarded legal from Thailand side' (MSR, 2020).

[4] Reflecting the proximity between the two border check points, the difference caused by cost, freight, and insurance (CIF) and time lags is expected to be smaller than for normal trade.

[5] Taneja et al. (2019) also point out the statistical discrepancy in the border trade between India and Myanmar.

[6] For example, India's increase in import tariffs on betel nuts in January 2017 from 4% to 40% is reported as a cause of tax evasion. See for example, 'At Moreh, trade with Myanmar borders on informal', *The Hindu: Business Line*, 12 November 2018.

2.4. Border Trade Connectivity along the TLH: An Indian Perspective[7]

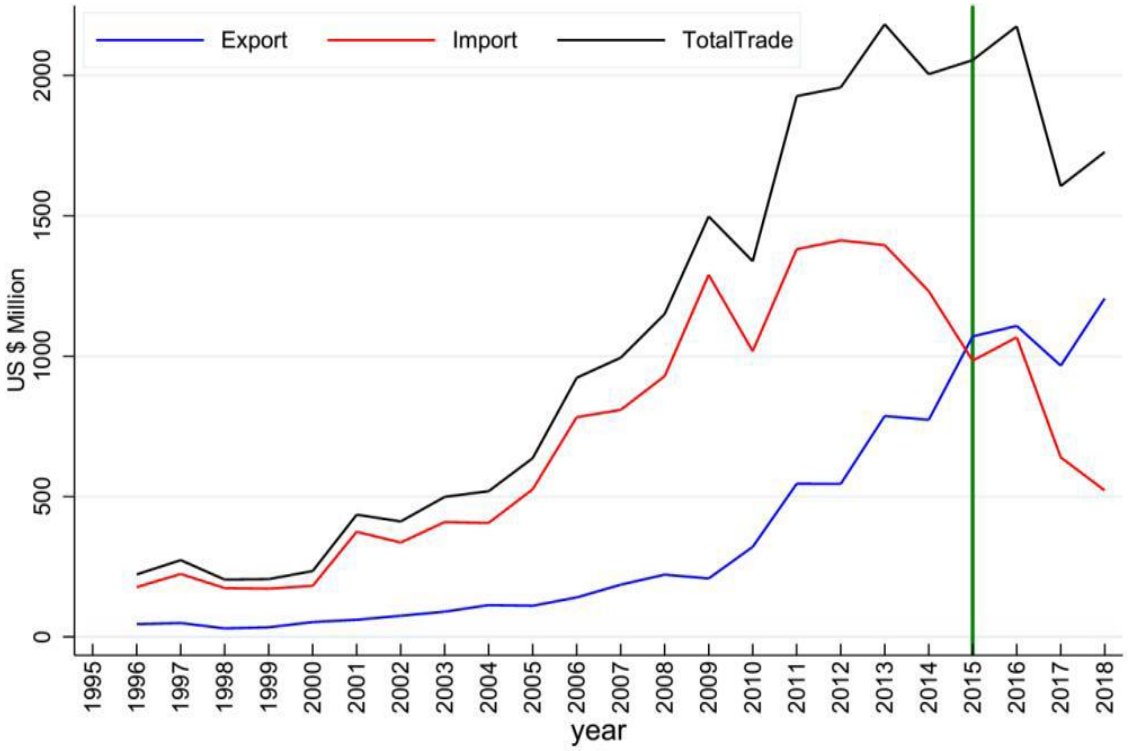
Trade has special significance for the North Eastern Region (NER) of India. Most (98%) of the border of the NER faces neighbouring countries, such as China, Bhutan, Myanmar, and Bangladesh. Myanmar shares a 1,643 km international border with the NER, with the states of Arunachal Pradesh (520 km), Manipur (389 km), Mizoram (510 km), and Nagaland (215 km). Despite four states sharing an international border with Myanmar, border trade with Myanmar only happens through Moreh in Manipur and Zokhawthar in Mizoram.

The India–Myanmar Border Trade Agreement was signed on 21 January 1994 and border trade started through the land customs stations (LCSs) of Moreh, Zokhawthar, and Nampong in Arunachal Pradesh. Out of three LCSs, only Moreh and Zokhawthar are functional border posts. Border trade through Moreh to Tamu in the Sagaing Region of Myanmar was formally started on 12 April 1995, while border trade through Zokhawthar and Rihkhawdar in Chin State of Myanmar began operation on 30 January 2004 with a new LCS opened on 14 September 2007.

India and Myanmar signed a bilateral trade agreement in 1970. Although there is no bilateral free trade agreement (FTA), Myanmar is one of India's FTA partners as a member of the Association of Southeast Asian Nations (ASEAN). The ASEAN–India FTA was signed on 13 August 2009 for trade in goods and on 13 November 2014 for trade in services. The trade in goods agreement entered into force on 1 January 2010 with ratification by India, Malaysia, Singapore, and Thailand. Myanmar joined the agreement by completing the ratification process on 1 June 2010. India also offers duty-free and quota-free (DFQF) market access to Myanmar. Bilateral trade has grown steadily and reached US$2.17 billion in 2016 (Figure 2.5). India's introduction of quotas on the imports of pulses and a hike in duty prices of about 40% on imports of betel nuts from Myanmar led to declines in India's formal imports from Myanmar from 2016 onwards. Myanmar maintained a trade surplus with India until 2015, and this turned into trade deficit thereafter.

[7] This subsection is based on the country report for India (De, et al. 2020).

Figure 2.5. India's Formal Trade with Myanmar



Source: Export-Import Databank, Government of India.

Notwithstanding the decline of bilateral trade in recent years, both India and Myanmar have significantly diversified their bilateral trade in terms of the number of goods traded. For instance, India has significantly increased its number of products exported to Myanmar from 1,122 in FY2010 to 2,469 in FY2018,[8] showing a rise of 10.63% per annum during the period. Similarly, Myanmar has almost doubled its number of products exported to India from 159 in FY2010 to 313 in FY2018.[9] This suggests higher consumer confidence in the economies, thereby opening further scope for trade creation between the two countries.

Compared to major exports and imports between India and Myanmar, most of which are routed through oceans, there are very few products that are traded through the land borders of India and Myanmar. Border trade potential between India and Myanmar is yet to be unlocked. From the Indian perspective, Myanmar is the gateway to and from ASEAN. Therefore, the completion

[8] In India, a fiscal year is from 1 April of a year to 31 March of the next calendar year.
[9] Based on the HS 8-digit level. Export–Import Databank, Government of India.

of the TLH is expected to generate new demand for trade through the land border, particularly via Moreh and Tamu.

Trade improves the social and economic conditions of the people who are directly participating in the trade. To boost exports from the NER in general and Manipur in particular, northeastern states have to create adequate infrastructure for the promotion of export-oriented firms and a business environment that facilitates cross-border linkages. For instance, some of the small and medium-sized enterprises (SMEs) located in and around Imphal city engaging in production activities, such as of PVC pipes, plastics, garments, processed foods, electrical products, and so on, also export to Myanmar through the Integrated Check Post (ICP) at Moreh. Local industries may switch over to the land border for their overseas trade once the TLH is completed. Therefore, assessing the current profile of border trade between India and Myanmar is important in order to make an appropriate strategy-driven connectivity programme for stimulating regional development in the NER.

Border trade started operating between the two countries in 1969. From 1990 to 1992, there were only India's exports to Myanmar. There were no imports from Myanmar to India. In 1992, legal trade based on a barter system on locally produced items within the radius of 40 km on the either side of the border started between the two countries and continued till 2006. In 1995, the agreement initially allowed 22 items to be traded up to US$20,000 under this system, with the mandate that imports and exports had to be balanced by exporting/importing goods of equivalent value within six months. 'Under this system, export from India to Myanmar shall precede import into India from Myanmar. No monetary transaction is involved under barter mechanism' (Manipur Online, 2010). Both exporters and importers have to possess an Importer Exporter Certificate allotted by the Director General of Foreign Trade. Guarantee receipt formalities are required only if the value per transaction exceeds US$1,000. In addition, 18 more items in 2008 and 22 items in 2012 were added to the list of tradable items for border trade (Table 2.21). Since 2015, formal trade based on the most-favoured-nation principle started between the two countries. Although normal trade started at the border, no duty drawbacks or trade preferences were extended to traders in the border.

Table 2.21. Items Permitted for Border Trade between India and Myanmar

10 April 1995: DGFT Public Notice No. 289(PN)/92-97
22 commodities/items were permitted for border trade. (1) bamboo, (2) betel nuts and leaves, (3) chillies, (4) coriander seeds, (5) food items for local consumption, (6) fresh vegetables, (7) fruits, (8) garlic, (9) ginger, (10) katha, (11) minor forest products (excluding teak), (12) mustard/rape seed, (13) onion, (14) pulses and beans, (15) reed broom, (16) resin, (17) roasted sunflower seeds, (18) sesame, (19) soya bean, (2) spices (excluding nut meg, mace, cloves, cassia & cinnamon), (21) tobacco, and (22) tomato.
7 November 2008: DGFT Public Notice No. 106(RE-2008)/2004-2009
18 new commodities/items were added and permitted for border trade. (1) agarbatti, (2) bicycle's spare parts, (3) blades, (4) bulbs, (5) cosmetics, (6) cotton fabrics, (7) fertilizers, (8) imitation, jewellerys, (9) insecticides, (10) leather footwear, (11) life saving drugs, (12) menthol, (13) mosquito coils, (14) paints & varnishes, (15) spices, (16) stainless steel utensils, (17) sugar & tomato, salt, (18) X-ray paper & photo paper.
16 November 2012: DGFT Public Notice No. 30 (RE2012)/2009-2014
22 new commodities/items were added and permitted for border trade. (1) agricultural machinery, equipments, tools, (2) bicycle, (3) bleaching powder, (4) coal, (5) edible oil, (6) electrical & electric appliances, (7) fabricated steel products, (8) garments, readymade garments, cloths, (9) handlooms and handicrafts items, (10) hardware, minor construction materials, and electrical fittings, (11) lime, (12) medicines, (13) milk powder, tea, edible oil, beverages, (14) motor cycles & motor cycle spare parts, (15) other items such as electronic/musical instruments, stationary item, torch light, (16) plastic items, such as water tank, buckets, chairs, plastic pipes and briefcase, (17) rice, wheat, maize, millets & oats, (18) scented tobacco, (19) semi precious stone, (20) sewing machines, (21) textile fabrics, and (22) two/three wheelers/cars below 100cc.

Source: De et al. (2020).

Although the border trade between India and Myanmar has increased, the size is not substantial when compared with Myanmar's border trade with China or Thailand (Table 2.19). The bilateral border trade volume may go up if we factor in the volume of informal trade between India and Myanmar. A substantial part of bilateral trade at the Moreh– Tamu border is carried out informally and, therefore, is not recorded in the official statistics. In the formal sector, Myanmar's exports to India through Tamu border totalled US$11.3 million in FY2005,[10] remained a low level of US$7.4 million in FY2012, and then started to increase and reached US$177.2 million in FY2018 (Table 2.19). On the other hand, based on Indian official statistics, India's exports to Myanmar through Moreh increased from US$4.0 million in FY2005 to only US$23.45 million in FY2018 (De et al. 2020).[11] India's major exports to Myanmar through Moreh are high-speed

[10] The data for FY2005 is taken from De et al. (2020), the original source of which is the information provided by the Embassy of India, Yangon. The data from FY2012 onward are regularly released by Myanmar's Ministry of Commerce as illustrated in Table 2.19.

[11] According to Table 2.19, which is based on the official statistics of Myanmar released by the Ministry of

diesel, wallpaper, wheat flour, methyl bromide, and fertiliser; whereas, India's major imports from Myanmar through Moreh are betel nuts, fresh vegetables, and fruits.[12]

Myanmar's exports to India do not pay any export duty for those items that are allowed to be exported to India. However, some of Myanmar's exports pay 2% duty to the Myanmar government. At present, 13 items are not allowed to be exported from Myanmar to India, and three items are not allowed to be imported from India to Myanmar. Out of 10,000 tariff line-wise export products, 3,500 tariff line products need export licenses. On the other hand, 4,800 tariff line products need import licenses. The rest of the products do not require any license, and traders can engage in export and import without major documentation and compliance. Tamu Chamber of Commerce is the nodal agency involved in facilitating Myanmar's trade with India through the Tamu border.

Betel nuts (or areca nuts) have long been the major export item from Myanmar to India. Myanmar, being a least developed country, receives a general duty-free quota market access from India, and the import of betel nuts was levied a countervailing duty of 4% only. However, the Government of India introduced a series of policy measures to protect domestic producers of betel nuts by discouraging imports from, or through, Myanmar.[13] First, the minimum import price (MIP) of betel nuts was raised 47.3% from Rs110/kg to Rs162/kg in June 2015 (Taneja et al. 2019). Second, a 40% tax duty on the import of betel nuts was introduced with effect from 25 November 2016.[14] As a result, the total tax levied on imports of betel nuts stands at 47%, consisting of basic duty (40%), CVD (4%), and cess (3%) (Ghosal and Mitra, 2017). Third, the MIP was increased again in January 2017 from Rs162/kg to Rs251/kg.[15] In response to these

Commerce, Myanmar's imports from India through the Tamu–Moreh border totalled US$1.87 million in FY2018.

[12] According RIS Survey (2019), exports through Moreh ICP in FY2018 were (i) one cargo (5,000 kg) of pesticides (methyl bromide), worth US$36,600, in February 2019; (ii) one consignment (940 kg) of wallpaper, worth US$37,000, in March 2019; and (iii) 16.95 metric tons of high-speed diesel US$11,230, in April 2019.

[13] It is believed, from anecdotal and informal sources, that a large part of betel nuts imported from Myanmar through the Moreh ICP were originally from Indonesia and transported to Myanmar from Thailand at the Mae Sot–Myawaddy border.

[14] According to Ghosal and Mitra (2017), the original source of information is the official letter (C.No.VIII(21)2/Cus/Tech/IMT/2016/10488-90(A)) issued by Customs Headquarter of Shillong on 16 September 2016.

[15] Refer to Ghosal and Mitra (2019) as well as The Dollar Business Bureau (2017). According to the article, '(t)he increase in the existing MIP on import of areca nuts will be interest of the domestic farmers, the statement said. MIP is the rate below which no imports are allowed. The largest producer of areca nuts in the country is Karnataka, followed by Kerala and Assam'.

measures, imports of betel nuts from Myanmar through the formal channel fell considerably from US$1,067.25 million in FY2016 to US$457 million in FY2018. At the same time, this has encouraged the rise of informal trade of betel nuts through the land border. Claiming that betel nuts entering India through Moreh are not necessarily of Myanmar origin, Indian Customs insists on a certificate of origin (COO) for the import of betel nuts. In response, Myanmar's authority at Tamu claims that the green betel nut variety is produced in the Kalay township in the Sagaing region and areas along the Chindwin River (RIS Survey, 2019). It is obvious, however, that Myanmar's exports of betel nuts at the Tamu–Moreh border, including those through informal channels, were significantly more than the production capacity of Myanmar.[16] There still remain a number of problems. It is also reported that the Tamu border trade station in Sagaing Region was closed for several months in early 2018, and due to the closure, traders sent areca nuts from Indonesia to India via Rhi in Chin State. In order to curb this diverted trade, the Government of India banned vehicles from crossing the Myanmar–India border bridge in Rih since May 2018 (Myanmar Times, 2019).

A major disadvantage to border trade is the lack of trade complementarities between the NER of India and Myanmar. Both regions share very similar industrial structures, where agriculture and resource extraction dominate. The NER produces mainly tea, coal, limestone, fruit, and vegetables, etc., and lacks the industrial capacity to produce the manufacturing products that Myanmar needs (Nath, 2018). This suggests that most of the border trade consists of informal trade, including goods from third countries, which brings arguably lower economic benefits to the region. On top of this, the overland route carries high transaction costs, which make it a far less desirable option, compared to ocean transport (Chong, 2018).

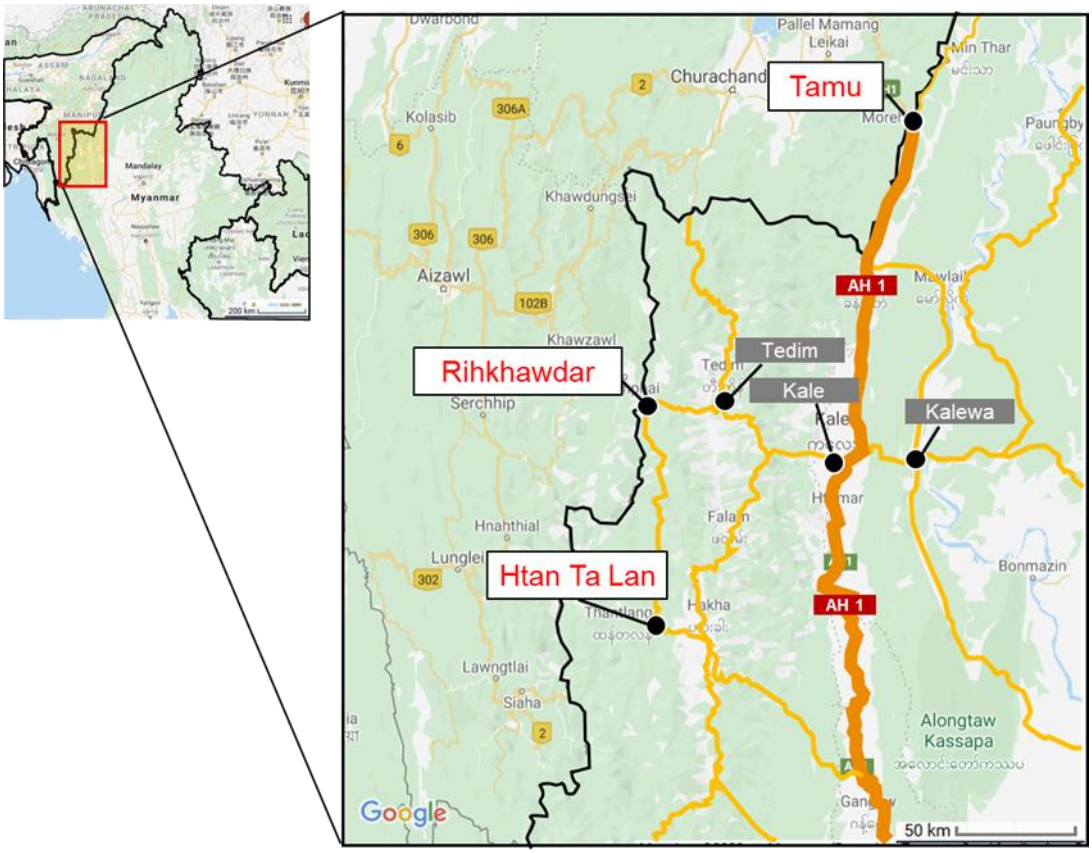
[16] According to U Khin Maung Tint, secretary of Kalay–Tamu Border Trade Merchant Association, '(w)e export more than 40,000 tonnes of betel nuts to India. Therefore, the amount of illegal betel nuts from Indonesia is more than 30,000 tonnes'. See Myanmar Times (2018).

2.5. Border Trade Connectivity along the TLH: A Myanmar Perspective[17]

(1) Tamu–Moreh (India)

Tamu is a town in Sagaing Region, adjacent to the city of Moreh in the Manipur State of India, It serves as the largest trading point with India amongst three main border points, namely, Tamu, Rihkhawdar,[18] and Htan Ta Lan (Figure 2.6). The Tamu border customs post was opened in 1995 after Myanmar and India signed a border trade agreement. This agreement also enabled the opening of the Rihlhawdar–Zokhawthar border point, which is the second border point with India after Tamu in terms of trade volume.

Figure 2.6. Three Border Points between Myanmar and India



Source: Drawn by MSR based on ©GoogleMap2020.

[17] This subsection is based on the country report for Myanmar (MSR, 2020).
[18] Rihkhawdar is also spelt as Rhi or Reed.

Compared to the total border trade, Tamu accounts only for 0.5% (Table 2.22), but in the past five years, trade has been increasing significantly led by the rapid growth of exports (Table 2.19). According to a border official, exports are still limited as the threat of ethnic minority armed groups like Kathae (Khasi) and Naga occasionally disrupt trade, which causes high transportation costs.[19] Imports from India are declining since the road from Imphal to Moreh is not well maintained. This increases the logistics and transport costs that are reflected in a final imported good's value. Therefore, the imported Indian products face tough condition to compete in the local markets like Mandalay and Yangon.

Traditionally, the single most exported good from Myanmar at the Tamu border point are betel nuts (also known as areca nuts), which is the fruit of a local palm tree. Betel nuts are widely consumed both in Myanmar and in India. In Myanmar, the nuts are grown in areas such as Tanintharyi, Ayeyarwady, and Mon, and the annual production is about 10,000 tons. India is one of the world's largest producers of betel nuts, but due to large demand in the Indian market, the reasonable price of importing from Myanmar, and the similarity of tastes between Myanmar and Indian products, India imports betel nuts from Myanmar.

Table 2.22. Myanmar's Border Trade

Border Trade Point	Border country	Trade Value (export + Import) (USD)		% of total 2017-2018
		2016-2017	2017-2018	
Muse	China	5410.1	5841.9	68.6%
Myawaddy	Thailand	931.7	942.3	11.1%
Chin Shwe Haw	China	573.4	572.2	6.7%
Myeik	Thailand	209.5	259.4	3.0%
Lwejel	China	202.1	237.8	2.8%
Kaw Thaung	Thailand	133.9	202.9	2.4%
Nabulae/Htee Khee	Thailand	106.6	122.3	1.4%
Kanpitetee	China	90.8	116.6	1.4%
Tachileik	Thailand	48.6	92.7	1.1%
Tamu	India	39.7	46.3	0.5%
Rhi (Reed)	India	11.9	44.4	0.5%
Sittwe	Bangladesh	5.9	14.8	0.2%
Maung Daw	Bangladesh	4.6	14.3	0.2%
Mawtaung	Thailand	4.5	7.4	0.1%
Keng Tung	China	3.2	1.9	0.0%
Mese	Thailand	0.4	1.0	0.0%
Htan Ta Lan	India		0.0	0.0%
Total	-	7777.0	8518.3	100.0%

Source: MSR (2020), based on original data from the Ministry of Commerce.

[19] Based on an interview in Tamu conducted by MSR in January 2020.

As described above, India has enhanced the restrictions on its imports of betel nuts from Myanmar by raising the minimum import price (MIP), introducing a tax duty of 40%, and even limiting the entry of vehicles since 2015 to protect domestic producers by curbing illegally imported betel nuts. India has pointed out that about 75% of the imported betel nuts are illegally imported to Myanmar through the Myawaddy border point with Thailand (Myanmar Times, 2018). The Indian government claimed these illegally imported betel nuts are not taxed properly by the Myanmar government. According to a border official at Tamu, exports of areca nuts have diminished recently in Tamu because of strict regulations for illegal exports and increased duties. The most recent export figures show that betel nuts do not appear in the top-10 export items from the Tamu border point.[20] Now, betel nuts are exported mainly from the Rih border trade point due to the lower taxes and fewer restrictions imposed on them than at the Tamu border, which are also, in some cases, illegally smuggled into India.[21]

Regarding Myanmar's imports from India at the Tamu–Moreh border point, motorcycles are now the top item followed by garden peas and *tamung lone kyaw* (ginseng) in FY2016. According to the updated information on imports for FY2018, medical equipment is top, followed by petroleum products and machine equipment. Due to the relatively small volume of imports from India, the items may change depending on the year-to-year demand from the Myanmar side.

(1) Myawaddy–Mae Sot (Thailand)

There are in total seven border trade zones between Myanmar and Thailand, one each from Mese of Kayah State, Tachileik in Shan State, and Myawaddy in Kayin State; and four in Tanintharyi Region, namely, Hteekhee, Mawtaung, Kawthoung and Myeik (Figure 2.7). Myawaddy is located in the southeastern part of Myanmar, separated from the Thai border town of Mae Sot by the Moei River (Thaung Yinn River). Myawaddy is one of the most important border trade zones between Myanmar and Thailand, as well as the second biggest amongst Myanmar's 18 border trade points only after Muse, which shares the border with Ruili in Yunnan Province of China.

[20] According to the data provided by Tamu border office, the top-10 export items are (1) black gram, (2) pigeon peas, (3) processed wood, (4) chickpeas, (5) raw rubber, (6) hard wood, (7) metals and ore, (8) red kidney beans, (9) maize, and (10) black pepper.

[21] Interview with border trade officers in Tamu in January 2020.

Figure 2.7. Seven Border Points between Myanmar and Thailand

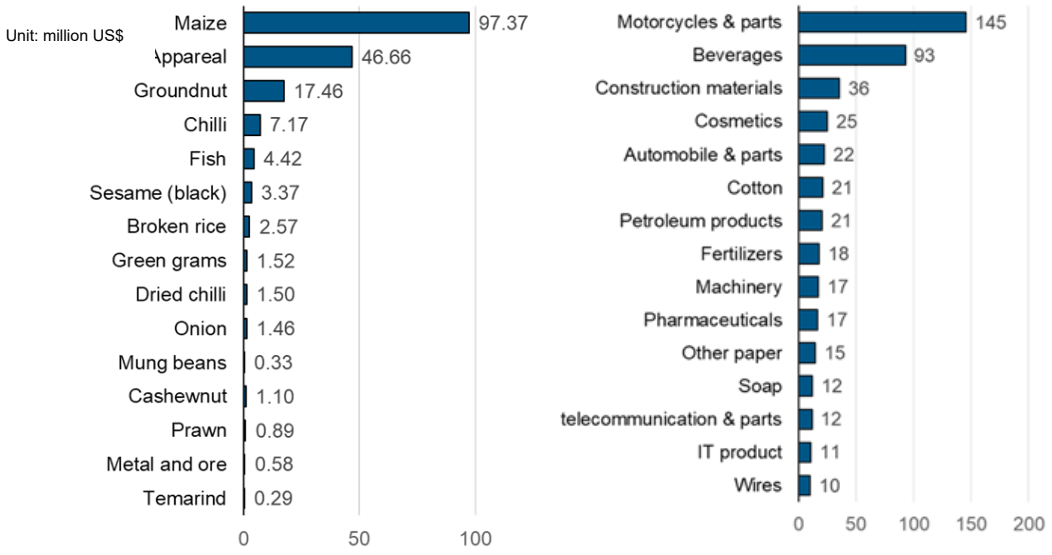
Source: Drawn by MSR (2020) based on ©Google Map 2020.

In terms of the total value of border trade, Myawaddy accounts for 11.1% (Table 2.22), but in the past 5 years, trade has been increasing significantly, at a CAGR of 16.24% from FY2014 to

FY2019. According to border officials at Myawaddy, although border trade at Myawaddy has steadily been increasing, it is estimated that illegal trade may be five times higher than the legal trade. Recently Chang beer from Thailand entered the rapidly growing beverage market in Myanmar by establishing a joint venture with a Myanmar brewery. Now Chang has to compete with its own products available on the black market. Since Myanmar does not allow beer imports, it is proof that the government is still trying hard to fight against smuggling at the border areas (Frontier Myanmar, 2020).

Since Myanmar is still an agriculture-based country, most of the export items from Myanmar are mainly agricultural and marine products (Figure 2.8). In FY2018, maize was the top export item to Thailand, but it was not even in the top-15 list for FY2017. A border trade officer at Myawaddy pointed out that although the Myanmar and Thai governments signed a cross-border trade agreement, they still need to negotiate to implement an equal policy on the taxation of certain goods throughout the year.

Figure 2.8. Myanmar's Border Trade with Thailand at Myawaddy (FY2018)



Source: MSR (2020), based on data provided by the Myawaddy border trade office.

Regarding imports from Thailand through Myawaddy, motorcycles were the top item followed by automobile parts, agricultural machinery, and beverages in FY2017. According to the updated information on imports for FY2018, motorcycles stayed on top, followed by beverages,

construction materials, and automobile parts. Due to the relatively small volume of imports from India, the items may change depending on the year-to-year demand from the Myanmar side. While formal trade on which the government collects duties may be rising, the amount of illegal trade across the long and mountainous border, where ethnic armed forces are active, is still unknown. Due to strict action taken against illegal trade at Myawaddy, the imported trade volume has risen significantly.

(2) Keng Lap–Xieng Kok (Lao PDR)

Keng Lap is a small town in Shan State of Myanmar that is situated along the border facing Xieng Kok in the Luang Namtha Province of the Lao PDR. Although the Myanmar–Lao PDR Friendship Bridge, connecting Keng Lap and Xieng Kok over the Mekong River, was opened in May 2015, the level of traffic across the bridge has been very low due mainly to the lack of a bilateral cross-border transport agreement.

From October 2019, trade at the Keng Lap border was opened. The border station started issuing licenses and permits for Myanmar exporters to enable them to trade with not only Lao PDR but mainly with China. According to a Keng Lap border official, exports from Myanmar started in FY2018, but there have been no imports from the Lao PDR to date. Currently, Myanmar exporters are waived the export tax to the internal revenue department. Export items have been limited to rice, maize, livestock (goats), and rubber. Rice is the main export item from Myanmar. According to the Ministry of Commerce, the trade value was US$18,000 in FY2018 and US$81,000 in September November of 2019.

According to a Keng Lap border official, the export quota of rice from Myanmar to China, which goes through Muse, reached its limit in 2019.[22] As a result, the Keng Lap border trade station became the main alternative transit gate for rice from Myanmar to China. On the other side of the Myanmar–Lao PDR Friendship Bridge, Chinese trucks arranged by Chinese importers wait to pick up commodities directly from Myanmar trucks. The official also added that starting from 2019, Myanmar traders are exporting rice directly to China without using the bypass route via the Lao PDR. However, they may again use the bypass route in the latter half of 2020 when they use up all of the export quotas to China. There have been no customs officials assigned on the

[22] Based on an interview by MSR in December 2019.

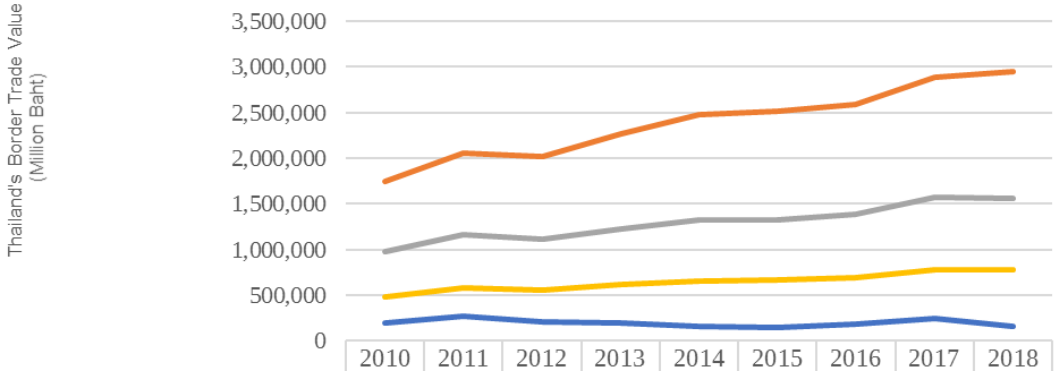
Lao PDR's side of the Friendship Bridge because the Lao PDR does not recognise that the border gate is operational due to the lack of a bilateral cross-border transport agreement.[23]

As of February 2020, the border gate is temporary closed in order to prevent the spread of the COVID-19 virus. The export of rice to China could be re-activated upon the Myanmar government's decision. To the Lao PDR, in addition to goats, other livestock, such as cows and buffaloes, are in line to be exported through the Keng Lap border gate in 2020.[24] There have been no imports from the Lao PDR at the Keng Lap border trade station.

2.6. Border Trade Connectivity along the TLH: A Thai Perspective[25]

In order to obtain insights about the potential of the TLH, it is important to have trade statistics on Thailand's main border point. The problem with these statistics is that they are official numbers, which do not take into account border and informal trade being done at the border. Nonetheless, it is important to illustrate the overall value of Thailand's border trade. Thailand currently enjoys an overall positive border trade balance, as shown in Figure 2.9.

Figure 2.9. Thailand's Border Trade



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Border Trade Value	770,11	890,66	910,50	1,034,	1,157,	1,179,	1,200,	1,319,	1,392,
Exports	486,49	580,15	556,97	614,21	660,76	664,41	691,25	784,27	778,29
Imports	283,62	310,51	353,52	420,18	496,72	515,09	509,61	534,79	614,33
Border Trade Balance	202,86	269,63	203,42	194,02	164,03	149,32	181,63	249,47	163,95

Source: Banomyong (2020), based on Thai Ministry of Commerce.

[23] Based on an interview with officials of Luang Namtha Province of the Lao PDR by the MSR in January 2020.

[24] Based on a follow-up interview with Keng Lap border trade officials over the phone, conducted by MSR, in February 2020.

[25] This subsection is based on the country report for Thailand (Banomyong, 2020).

Another observed limitation related to border statistics is that each Thai Customs house collects its statistics in a different format. Although the main statistics collected are the same, the level of detail required by each Customs house is different. Border trade data are collected in value terms, and it is almost impossible to obtain volume data. The section hereafter presents different trade statistics from the main Thai border posts.

(1) Mae Sot–Myawaddy (Myanmar)

Mae Sot is currently the most important border post in terms of border trade value with Myanmar. The completion of the Second Thai–Myanmar Friendship Bridge and improved infrastructure on the Myawaddy side have helped Mae Sot grow in terms of trade value. The statistics of the top-25 commodities for exports and imports are described in Table 2.23. The Thai fiscal year starts on 1 October and ends on 30 September.

The data provided by Mae Sot Customs House shows the evolution of the major exports and imports via Mae Sot. The top export in FY2016 and FY2017 to Myanmar was sugar, comprising 6.6% and 6.2% of total exports to Myanmar through Mae Sot, respectively. However, in FY2018, sugar was ranked 6th (1.9%), being overtaken by motorcycles (4.0%). The reason why sugar was the most exported commodity was because of a sugar shortage in China. Because of the sugar quotas in China, the price of sugar per ton in the Chinese market was on average US$200 higher than prices in global markets. Even though the transport cost per ton was between US$50–US$70, it was still worthwhile to use the overland transit route via Myanmar.

It was estimated that more than 4 million tons of sugar from India and Thailand were exported via Myanmar to China through the Muse–Ruili border gate over the 2.year period, but these numbers cannot be officially confirmed. Almost all products exported from Thailand from Mae Sot do not have India as a final destination, and most of the commodities are destined for Myawaddy, Yangon, and Mandalay. It is important to note that on the Myanmar side, the import statistics do not match the export statistics of the Thai side as quite a large portion of the Thai exports are not declared when they enter Myanmar.

For example, according to Thai trade data, dried areca nuts (betel nuts) worth B1,234 million were exported to Myanmar through Mae Sot Customs (Table 2.23). However, according to Myanmar trade data, the corresponding import is not listed in the top-15 items (Figure 2.8).[26]

Table 2.23. Thai Border Trade with Myanmar at Mae Sot

FY2018 (October 2017 – September 2018)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Motorcycles	3,136	4.0%	4.0%	1. Live cattle	1,427	22.0%	22.0%
2. Evergy drinks	3,126	3.9%	7.9%	2. Iron scrap	1,057	16.3%	38.3%
3. Mobile phone, etc.	2,436	3.1%	11.0%	3. Peanut	763	11.8%	50.1%
4. Gasoline	1,831	2.3%	13.3%	4. Antimony oxide	450	6.9%	57.0%
5. Diesel oil	1,756	2.2%	15.5%	5. Mobile phone	362	5.6%	62.6%
6. Sugar	1,511	1.9%	17.4%	6. Electrical transformer	204	3.2%	65.7%
7. Chemical fertiliser	1,491	1.9%	19.3%	7. Wood furnitures	196	3.0%	68.7%
8. Cotton printed fabric	1,330	1.7%	21.0%	8. Lady's underwear	130	2.0%	70.7%
9. Dried areca nuts	1,234	1.6%	22.5%	9. Cashew nuts	110	1.7%	72.4%
10. Floor tiles	1,177	1.5%	24.0%	10. Sesame (grains)	98	1.5%	74.0%
Total	79,272	100.0%	-	Total	6,487	100.0%	-

FY2017 (October 2016 – September 2017)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Sugar	4,783	6.2%	6.2%	1. Live cattle	1,376	26.0%	26.0%
2. Motorcycles	2,984	3.8%	10.0%	2. Peanut	1,028	19.4%	45.3%
3. Mobile phone, etc.	2,775	3.6%	13.6%	3. Antimony oxide	383	7.2%	52.6%
4. Evergy drinks	1,882	2.4%	16.0%	4. Wood furnitures	328	6.2%	58.8%
5. Cotton printed fabric	1,519	2.0%	17.9%	5. Mobile phone	314	5.9%	64.7%
6. Beer	1,464	1.9%	19.8%	6. Iron scrap	163	3.1%	67.8%
7. Liquid petroleum gas	1,234	1.6%	21.4%	7. Dried chilli	154	2.9%	70.7%
8. Harvesting machinery	1,230	1.6%	23.0%	8. Tamarind	94	1.8%	72.5%
9. Beverage	1,182	1.5%	24.5%	9. Electrical transformer	92	1.7%	74.2%
10. Slippers	1,123	1.4%	26.0%	10. Cashew nuts	70	1.3%	75.5%
Total	77,690	100.0%	-	Total	5,302	100.0%	-

FY2016 (October 2015 – September 2016)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Sugar	5,244	6.6%	6.6%	1. Peanut	765	18.3%	18.3%
2. Mobile phone, etc.	5,023	6.3%	12.9%	2. Live cattle	684	16.4%	34.7%
3. Beverage	3,010	3.8%	16.7%	3. Antimony oxide	359	8.6%	43.3%
4. Beer	2,724	3.4%	20.1%	4. Dried chilli	296	7.1%	50.3%
5. Motorcycles	2,397	3.0%	23.1%	5. Green beans	170	4.1%	54.4%
6. Harvesting machinery	2,226	2.8%	25.9%	6. Antimony	128	3.1%	57.5%
7. Cotton printed fabric	1,958	2.5%	28.4%	7. Wood furnitures	120	2.9%	60.3%
8. Evergy drinks	1,925	2.4%	30.8%	8. Mobile phone	115	2.8%	63.1%
9. Television	1,454	1.8%	32.6%	9. Onion	112	2.7%	65.8%
10. Gasoline	1,344	1.7%	34.3%	10. Bicycle (used)	95	2.3%	68.0%
Total	79,627	100.0%	-	Total	4,179	100.0%	-

Source: Banomyong (2020), based on the data provided by Mae Sot Customs House.

[26] The value of the 15th import item (wires) is US$10 million (about B325 million), which is significantly below the export value (B1,234) recorded in Thai trade data.

On the Thai import side, the commodity with the highest import value depends on the year and is either peanuts or live cattle that are destined for Malaysia. The value of imports is quite small compared to the value of exports at Mae Sot, and they are mostly composed of agricultural products or goods coming from the export processing zones in Myawaddy.

(2) Aranyaprathet–Poipet (Cambodia)

Aranyaprathet is the main border post between Thailand and Cambodia. This border post can be considered as a potential gateway for the TLH into Cambodia. It must not be forgotten that in the Asian Development Bank's Southern Economic Corridor development, Dawei in Myanmar via the Thai province of Kanchanaburi will be connected to Aranyaprathet. Table 2.24 illustrates the trade statistics of Aranyaprathet, which faces Poipet in Cambodia.

There is a strong imbalance between exports and imports, with more Thai exports than imports from Cambodia. Aranyaprathyet border post currently suffers from congestion, as the physical facilities are inadequate for the growing volume of freight and people going across. The Thai government is now building two new border posts near this area at Ban Pa Rai and Nong Ien with support for the facilities on the Cambodian side being given by the Neighbouring Countries Economic Development Cooperation Agency, which is the Thai aid agency. Officials at this border post are sceptical regarding the linkages with the TLH but see the potential connectivity with Southern Viet Nam, especially Ho Chi Minh City and ports in Vung Tau. If the TLH is to be extended through Aranyaprathet, then it will be challenging to identify freight flows to and from India.

Table 2.24. Thai Border Trade with Cambodia at Aranyaprathet

FY2018 (October 2017 – September 2018)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Beverage	4,882	6.8%	6.8%	1. Tapioca	4,075	24.1%	24.1%
2. Motorcycle engines	4,295	6.0%	12.8%	2. Motor components	1,640	9.7%	33.8%
3. Motorcycle parts	3,634	5.1%	17.9%	3. Alminium scraps	1,325	7.8%	41.6%
4. Cars	3,559	5.0%	22.9%	4. Copper scraps	930	5.5%	47.1%
5. Motorcycles	2,405	3.4%	26.3%	5. Dog feed	684	4.0%	51.1%
6. Tractor	2,400	3.4%	29.6%	6. Tiny DC motors	494	2.9%	54.0%
7. Cement	1,963	2.7%	32.4%	7. Printed circuit board	489	2.9%	56.9%
8. Harvesting machinery	1,736	2.4%	34.8%	8. Hard disk components	456	2.7%	59.6%
9. Plastic products	1,584	2.2%	37.0%	9. Soybean	359	2.1%	61.8%
10. Knitted fabric	1,446	2.0%	39.0%	10. Electric wire	306	1.8%	63.6%
Total	71,467	100.0%	-	Total	16,926	100.0%	-

FY2017 (October 2016 – September 2017)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Cars	3,432	6.1%	6.1%	1. Tapioca	6,156	37.9%	37.9%
2. Motorcycle engines	3,038	5.4%	11.4%	2. Motor components	1,282	7.9%	45.8%
3. Motorcycle parts	2,891	5.1%	16.5%	3. ISO tank	1,043	6.4%	52.3%
4. Harvesting machinery	2,704	4.8%	21.3%	4. Alumimium scraps	764	4.7%	57.0%
5. Beverage	2,680	4.7%	26.1%	5. Copper scraps	756	4.7%	61.6%
6. Cement	1,897	3.4%	29.4%	6. Dog feed	641	4.0%	65.6%
7. Tractor	1,577	2.8%	32.2%	7. Tiny DC motors	456	2.8%	68.4%
8. Plastic products	1,457	2.6%	34.8%	8. Women's cloths	281	1.7%	70.1%
9. Motorcycles	1,132	2.0%	36.8%	9. Garment (used)	275	1.7%	71.8%
10. ISO tank	1,131	2.0%	38.8%	10. Electric wire	267	1.6%	73.5%
Total	56,602	100.0%	-	Total	16,227	100.0%	-

FY2016 (October 2015 – September 2016)							
Export	B mil.	Share	Cumurative share	**Import**	B mil.	Share	Cumurative share
1. Motorcycle engines	3,571	6.3%	6.3%	1. Tapioca	6,975	43.5%	43.5%
2. Cars	3,378	5.9%	12.2%	2. Camera components	1,539	9.6%	53.0%
3. Motorcycle parts	3,371	5.9%	18.1%	3. ISO tank	1,151	7.2%	60.2%
4. Harvesting machinery	3,245	5.7%	23.8%	4. Motor components	813	5.1%	65.3%
5. Tractor	2,181	3.8%	27.6%	5. Dog feed	753	4.7%	70.0%
6. Cement	1,971	3.5%	31.0%	6. Alumimium scraps	539	3.4%	73.3%
7. Plastic products	1,412	2.5%	33.5%	7. Electric wire	467	2.9%	76.2%
8. Live pigs	1,320	2.3%	35.8%	8. Garment (used)	301	1.9%	78.1%
9. ISO tank	1,290	2.3%	38.1%	9. Copper scraps	263	1.6%	79.8%
10. Beverage	1,171	2.1%	40.1%	10. Soybean grain	243	1.5%	81.3%
Total	57,073	100.0%	-	Total	16,050	100.0%	-

Source: Banomyong (2020), based on the data provided by Aranyaprathet Customs House.

The dilemma is similar to that of the East–West Economic Corridor (EWEC). EWEC extends 1,320 km as a continuous land route between the Andaman Sea in the Indian Ocean and the South China Sea. The provinces bordering the corridor are as follows: Da Nang, Dong Ha, Thua Thien

Hue, and Quang Tri in Viet Nam; Dansavanh and Savannakhet in the Lao PDR; Mukdahan, Kuchinarai, Kalasin, Khon Kaen, Phitsanulok, Mae Sot, and Tak in Thailand; and Kayin and Mon in Myanmar. The notable geographic characteristics of the EWEC are as follows:

- **Commercial nodes**: It links important commercial nodes in each member country: (i) Mawlamyine–Myawaddy in Myanmar, (ii) Mae Sot–Phitsanulok–Khon Kaen–Kalasin–Mukdahan in Thailand, (iii) Savannakhet–Dansavanh in the Lao PDR, and (iv) Lao Bao–Dong Ha–Hue – Da Nang in Viet Nam.
- **Border nodes**: It contains the border nodes (checkpoints) of Myawaddy–Mae Sot between Myanmar and Thailand, Mukdahan–Savannakhet between Thailand and Lao PDR, and Dansavanh–Lao Bao between the Lao PDR and Viet Nam.

The natural conduit for the extension of the TLH should be the EWEC, even though there is no through traffic via this corridor as there is some institutional complementarity and the Cross Border Transport Agreement (CBTA) can be used as a reference template for negotiating cross-border transport with India.

2.7. Trade Connectivity with Cambodia, the Lao PDR, and Viet Nam

This subsection illustrates the recent international trade of Cambodia, the Lao PDR, and Viet Nam, with special attention to the development of trade connectivity with India, Myanmar, and Thailand. As discussed above, Myanmar's exports and imports have grown more rapidly than those of India and Thailand, with CAGRs of 8.2% and 18.8% respectively. During the same period of time, Cambodia, the Lao PDR, and Viet Nam have achieved significantly higher export growth than Myanmar, with CAGRs of 16.2%, 14.9%, and 16.4%, respectively, while import growth has been more or less comparable to Myanmar.

(1) Cambodia

Cambodia's exports grew at a CAGR of 16.2% from US$3,826 million in 2010 to US$12,700 million in 2018 (Table 2.25). A large part (44.0%) of this rapid growth can be explained by exports to the European Union (EU), followed by the United States (12.8%) and Japan (11.1%), taking advantage of preferential access to these markets under the Generalized Scheme of Preferences. The

combined shares of these advanced countries stood at 70.5% in 2018. As a result of an even higher CAGR (38.2%), China became the fourth-largest export market for Cambodia by 2018.

Table 2.25. International Trade of Cambodia

Export	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	3,825,903	100.0%	8,557,669	100.0%	12,700,280	100.0%	16.2%	100.0%
EU	935,334	24.4%	3,319,533	38.8%	4,839,458	38.1%	22.8%	44.0%
United States	1,909,611	49.9%	2,156,086	25.2%	3,044,326	24.0%	6.0%	12.8%
Japan	89,858	2.3%	576,748	6.7%	1,076,252	8.5%	36.4%	11.1%
China	64,414	1.7%	431,927	5.0%	858,736	6.8%	38.2%	9.0%
Viet Nam	114,463	3.0%	179,786	2.1%	361,816	2.8%	15.5%	2.8%
Thailand	149,242	3.9%	273,562	3.2%	313,441	2.5%	9.7%	1.9%
Rest of ASEAN	48,892	1.3%	229,864	2.7%	269,184	2.1%	23.8%	2.5%
Republic of Korea	23,162	0.6%	141,205	1.7%	200,163	1.6%	30.9%	2.0%
India	8,066	0.2%	9,997	0.1%	50,120	0.4%	25.7%	0.5%
Lao PDR	881	0.0%	5,305	0.1%	7,370	0.1%	30.4%	0.1%
Myanmar	2	0.0%	979	0.0%	2,870	0.0%	146.2%	0.0%
Rest of the world	481,977	12.6%	1,232,677	14.4%	1,676,543	13.2%	16.9%	13.5%

Import	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	4,775,283	100.0%	11,797,338	100.0%	17,490,016	100.0%	17.6%	100.0%
China	1,153,601	24.2%	3,954,974	33.5%	6,139,573	35.1%	23.2%	39.2%
Thailand	686,805	14.4%	2,040,294	17.3%	3,222,089	18.4%	21.3%	19.9%
Viet Nam	488,075	10.2%	1,359,126	11.5%	2,220,968	12.7%	20.9%	13.6%
Rest of ASEAN	499,579	10.5%	1,253,740	10.6%	1,578,894	9.0%	15.5%	8.5%
Japan	137,350	2.9%	419,834	3.6%	736,444	4.2%	23.4%	4.7%
EU	145,050	3.0%	375,003	3.2%	722,247	4.1%	22.2%	4.5%
Republic of Korea	231,815	4.9%	465,473	3.9%	563,879	3.2%	11.8%	2.6%
United States	111,807	2.3%	217,933	1.8%	266,079	1.5%	11.4%	1.2%
India	52,572	1.1%	116,114	1.0%	155,553	0.9%	14.5%	0.8%
Myanmar	52	0.0%	3,706	0.0%	7,198	0.0%	85.2%	0.1%
Lao PDR	1,504	0.0%	20,468	0.2%	1,694	0.0%	1.5%	0.0%
Rest of the world	1,267,072	26.5%	1,570,674	13.3%	1,875,399	10.7%	5.0%	4.8%

Source: ASEANStats.

Despite their adjacency, Cambodia's exports to Thailand grew at a lower CAGR of 9.7% than for total exports, resulting in a decrease in the share from 3.9% in 2010 to 2.5% in 2018. Cambodia's export to India and Myanmar increased faster, with CAGRs of 25.7% and 146.2% respectively,

but the shares in total exports were still very limited at 0.5% and 0.02%, respectively, in 2018.

Cambodia's imports grew at a CAGR of 17.6%, slightly higher than for exports, from US$4,775 million in 2010 to US$17,490 million in 2018 (Table 2.25). As a result, trade deficits expanded significantly from US$949 million in 2010 to US$4,790 million in 2018. The contributors of this rapid import growth are different from those in the case of exports. The combined contribution rates of the top-three origins of Cambodia's imports, namely China, Thailand, and Viet Nam, stands at 72.8%. The contribution rates of the EU, the United States, and Japan are only 4.5%, 1.2%, and 4.7%, respectively. As a result, Cambodia expanded its trade surplus vis-à-vis EU, the United States, and Japan, while piling up trade deficits vis-à-vis China, Thailand, and Viet Nam. The shares of India and Myanmar are very limited in Cambodia's imports, at –0.9% and 0.04%, respectively, in 2018.

(2) Lao PDR

The Lao PDR's exports grew at a CAGR of 14.9% from US$1,909 million in 2010 to US$5,815 million in 2018 (Table 2.26). Different from Cambodia, nearly all of this rapid export growth was achieved from exports to Thailand, China, and Viet Nam, with a combined contribution rate of 98.9%. As a result, the shares of these top-three export destinations for the Lao PDR were 48.2%, 26.6%, and 15.2% in 2018, which add up to 90.0%, clearly indicating the heavy dependence of the Lao PDR's exports to these three countries. In contrast to Cambodia, the shares of the EU, the United States, and Japan were only 2.2%, 0.5%, and 1.5%, respectively, in 2018. Although the share of India in the Lao PDR's exports was still only 2.2% in 2018, it has been rapidly increasing at a CAGR of 156.3% since 2010. Regardless of being one of its five adjacent countries, the Lao PDR's exports to Myanmar have been very limited (0.01% in 2018) and the growth has also been stagnant.

The Lao PDR's imports also depend heavily on Thailand, China, and Viet Nam. Most (84.2%) of the CAGR of 15.6% between 2010 and 2018 can be explained by the increase in imports from these three countries. The shares of Thailand, China, and Viet Nam in the Lao PDR's total imports were 53.1%, 21.9%, and 10.4%, which add up to 85.4%. Although imports from India and Myanmar are still very limited, they have been growing at CAGRs slightly higher than the total imports.

Table 2.26. International Trade of the Lao PDR

Export	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	1,908,745	100.0%	2,985,098	100.0%	5,814,806	100.0%	14.9%	100.0%
Thailand	1,022,056	53.5%	1,008,077	33.8%	2,802,098	48.2%	13.4%	45.6%
China	222,832	11.7%	1,039,451	34.8%	1,546,520	26.6%	27.4%	33.9%
Viet Nam	124,310	6.5%	537,773	18.0%	885,344	15.2%	27.8%	19.5%
EU	152,238	8.0%	196,811	6.6%	190,659	3.3%	2.9%	1.0%
India	69	0.0%	33,037	1.1%	128,765	2.2%	156.3%	3.3%
Japan	26,855	1.4%	49,625	1.7%	86,363	1.5%	15.7%	1.5%
Rest of ASEAN	2,917	0.2%	14,507	0.5%	31,027	0.5%	34.4%	0.7%
United States	38,705	2.0%	23,729	0.8%	26,851	0.5%	-4.5%	-0.3%
Cambodia	2,227	0.1%	17,352	0.6%	7,028	0.1%	15.4%	0.1%
Republic of Korea	793	0.0%	6,366	0.2%	4,461	0.1%	24.1%	0.1%
Myanmar	323	0.0%	294	0.0%	613	0.0%	8.3%	0.0%
Rest of the world	315,418	16.5%	58,076	1.9%	105,075	1.8%	-12.8%	-5.4%

Import	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	1,836,634	100.0%	3,778,392	100.0%	5,848,036	100.0%	15.6%	100.0%
Thailand	1,319,617	71.8%	2,222,616	58.8%	3,103,806	53.1%	11.3%	44.5%
China	179,722	9.8%	713,284	18.9%	1,283,616	21.9%	27.9%	27.5%
Viet Nam	120,700	6.6%	526,526	13.9%	608,366	10.4%	22.4%	12.2%
Japan	32,626	1.8%	72,127	1.9%	125,405	2.1%	18.3%	2.3%
EU	14,148	0.8%	57,500	1.5%	110,687	1.9%	29.3%	2.4%
Rest of ASEAN	47,345	2.6%	29,224	0.8%	107,974	1.8%	10.9%	1.5%
Republic of Korea	19,182	1.0%	48,446	1.3%	67,021	1.1%	16.9%	1.2%
India	6,249	0.3%	14,188	0.4%	25,960	0.4%	19.5%	0.5%
United States	4,224	0.2%	19,657	0.5%	21,610	0.4%	22.6%	0.4%
Cambodia	44	0.0%	487	0.0%	415	0.0%	32.5%	0.0%
Myanmar	35	0.0%	1	0.0%	189	0.0%	23.7%	0.0%
Rest of the world	92,743	5.0%	74,335	2.0%	392,988	6.7%	19.8%	7.5%

Source: ASEANStats.

Being a landlocked country, border trade is highly important for the Lao PDR. Table 2.27 shows the Lao PDR's border trade with China, Thailand, and Viet Nam.[27] It should be noted that Xieng Kok in Luang Namtha Province, bordering Keng Lap in Shan State of Myanmar via the Lao PDR–Myanmar Friendship Bridge, is not listed in Table 2.27. Xieng Kok is viewed as the entry point from Myanmar for the northern route of the eastward extension of the TLH (Figure 1-1). Furthermore, the quality of the data requires special caution as indicated in Table 2.28, which points to possible discrepancies by comparing the data in Tables 2.26 and 2.27. For example, the sum of the Lao PDR's exports to Viet Nam through border checkpoints facing Viet Nam (US$1,603 million based on Table 2.27) is significantly more than the total trade to Viet Nam at the national level (US$885 million based on Table 2.26). Even with this statistical problem, it is clear that the Lao PDR's border trade with Viet Nam at the Pang Hok–Tay Trang border, which is another border checkpoint along the northern route of eastward extension of the TLH, is still very limited.

Table 2.27. Border Trade of the Lao PDR (2018)

Lao PDR		Counterpart		Export		Import	
Check point	Province	Check point	Country	US$ k.	Share	US$ k.	Share
Boten	Luang Namtha	Mohan	China	278,641	7.3%	871,883	15.5%
Savan-Seno SEZ	Savannaket	Mukdahan	Thailand	980,083	25.7%	565,730	10.1%
Thanaleng (FB1)	Vientiane Capital	Nong Khai	Thailand	555,089	14.5%	1,726,649	30.7%
Vang Tao	Champasek	Chong Mek	Thailand	162,193	4.2%	315,799	5.6%
Thakhek (FB3)	Khammouna	Nakhon Phanom	Thailand	99,250	2.6%	393,052	7.0%
Mukdahan (FB2)	Savanakhet	Mukdahan	Thailand	87,099	2.3%	260,753	4.6%
Nam Heuang	Xayabouli	Tha Li	Thailand	19,115	0.5%	221,859	3.9%
Nam Ngeun	Xayabouli	Huai Kon	Thailand	17,199	0.5%	159,545	2.8%
Huayxay (FB4)	Bokeo	Chiang Khong	Thailand	10,907	0.3%	107,872	1.9%
Paksan	Bolikhamxay	Bungkan	Thailand	5,172	0.1%	136,603	2.4%
Phoudou	Xayabouli	Uttaradit	Thailand	2,091	0.1%	61,676	1.1%
Na pao	Khammouan	Cha Lo	Viet Nam	804,164	21.1%	66,589	1.2%
Dansavan	Savanakhet	Lao Bao	Viet Nam	347,891	9.1%	196,370	3.5%
Nam phao	Bolikhamxay	Cau Treo	Viet Nam	316,773	8.3%	422,182	7.5%
Phoukeua	Attapue	Bo Y	Viet Nam	116,531	3.1%	68,670	1.2%
Nam Khan	Xiengkhouang	Nam Can	Viet Nam	9,607	0.3%	25,831	0.5%
Nam soy	Huaphan	Na Meo	Viet Nam	3,343	0.1%	7,590	0.1%
Pang Hok	Phongsaly	Tay Trang	Viet Nam	2,817	0.1%	15,994	0.3%
Ban Mone	Phongsaly		Viet Nam	1,349	0.0%	2,497	0.0%
			Total:	**3,819,316**	**100.0%**	**5,627,146**	**100.0%**

Note: 'FB' in checkpoints in the Lao PDR means Friendship Bridges. Currently, four Friendship Bridges are in use to connect the Lao PDR to Thailand across the Mekong River.
Source: Department of Import and Export, Ministry of Industry and Commerce.

[27] Table 2.27 covers most of the international border checkpoints, but is not a comprehensive list of international border gates, and also includes international airports in Vientiane, Luang Prabang, Savarnakhet, and Pakse. Other international border checkpoints that are not listed in Table 2.27 include Lantouy (Phongsaly) bordering China, Veun Kham (Champasak) bordering Cambodia, Lalay (Salavan) bordering Viet Nam, and so on.

Table 2.28. Statistical Discrepancy in Trade Statistics of the Lao PDR

	Export (US$ k.)			Import (US$ k.)		
	Total	Border	Ratio	Total	Border	Ratio
Thailand	2,802,098	1,938,199	69.2%	3,103,806	3,949,539	127.2%
China	1,546,520	278,641	18.0%	1,283,616	871,883	67.9%
Viet Nam	885,344	1,602,476	181.0%	608,366	805,723	132.4%
Total	5,814,806	3,819,316	65.7%	5,848,036	5,627,146	96.2%

Source: Tables 2.26 and 2.28.

(3) Viet Nam

As the new member states of to ASEAN, Cambodia, the Lao PDR, Myanmar, and Viet Nam have often been treated as a subgroup of ASEAN, under the name of CLMV. However, Viet Nam has in fact been significantly ahead of the other three countries in many respects. The size of Viet Nam's international trade, in terms of the sum of exports and imports, was 15.9 times, 41.2 times, and 13.3 times larger in 2018 than the comparable figures for Cambodia, the Lao PDR, and Myanmar, respectively.[28]

Viet Nam's exports grew at a CAGR of 16.4%, from US$72,237 million in 2010 to US$243,699 million in 2018 (Table 2.29). This rapid export growth was sustained mainly by exports to three major destinations, namely the United States, the EU, and China, with a combined contribution rate of 57.1%. The shares of these three destinations in 2018 were 19.5%, 17.2%, and 17.0%, which add up to 53.7%. Although the shares of India, Thailand, and Myanmar were still only 2.7%, 2.2%, and 0.3% in 2018, Viet Nam's exports to these three countries has been increasing, with CAGRs of 26.6%, 20.5%, and 39.4%, respectively, which are significantly higher than the CAGR for total exports.

[28] Computed based on the data in Tables 2.3, 2.4, 2.23, 2.24, and 2.25.

Table 2.29. International Trade of Viet Nam

Export	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	72,236,663	100.0%	162,013,852	100.0%	243,698,700	100.0%	16.4%	100.0%
United States	14,238,131	19.7%	33,491,224	20.7%	47,529,730	19.5%	16.3%	19.4%
EU	11,402,247	15.8%	30,967,477	19.1%	41,911,307	17.2%	17.7%	17.8%
China	7,308,800	10.1%	16,645,679	10.3%	41,366,459	17.0%	24.2%	19.9%
Japan	7,727,660	10.7%	14,144,373	8.7%	18,833,675	7.7%	11.8%	6.5%
Republic of Korea	3,092,225	4.3%	8,937,238	5.5%	18,240,595	7.5%	24.8%	8.8%
Rest of ASEAN	7,368,487	10.2%	11,591,965	7.2%	14,277,604	5.9%	8.6%	4.0%
India	991,630	1.4%	2,474,806	1.5%	6,543,814	2.7%	26.6%	3.2%
Thailand	1,182,842	1.6%	3,147,515	1.9%	5,267,504	2.2%	20.5%	2.4%
Cambodia	1,551,666	2.1%	2,410,731	1.5%	3,791,860	1.6%	11.8%	1.3%
Myanmar	49,521	0.1%	378,746	0.2%	702,070	0.3%	39.3%	0.4%
Lao PDR	198,432	0.3%	534,751	0.3%	595,203	0.2%	14.7%	0.2%
Rest of the world	17,125,021	23.7%	37,289,345	23.0%	44,638,881	18.3%	12.7%	16.0%

Import	2010		2015		2018		2010 → 2018	
	US$ k.	Share	US$ k.	Share	US$ k.	Share	CAGR	Contrib.
Total	84,838,552	100.0%	165,729,898	100.0%	236,868,856	100.0%	13.7%	100.0%
China	20,018,827	23.6%	49,558,231	29.9%	65,516,168	27.7%	16.0%	29.9%
Republis of Korea	9,761,342	11.5%	27,591,807	16.6%	47,582,218	20.1%	21.9%	24.9%
Japan	9,016,085	10.6%	14,354,589	8.7%	19,040,861	8.0%	9.8%	6.6%
Rest of ASEAN	10,134,045	11.9%	13,955,202	8.4%	18,207,117	7.7%	7.6%	5.3%
EU	6,423,240	7.6%	10,221,364	6.2%	13,884,046	5.9%	10.1%	4.9%
United States	3,766,911	4.4%	7,796,740	4.7%	12,747,327	5.4%	16.5%	5.9%
Thailand	5,602,281	6.6%	8,282,608	5.0%	12,042,819	5.1%	10.0%	4.2%
India	1,762,034	2.1%	2,643,465	1.6%	4,147,018	1.8%	11.3%	1.6%
Cambodia	276,623	0.3%	947,490	0.6%	968,799	0.4%	17.0%	0.5%
Lao PDR	291,747	0.3%	585,881	0.4%	436,716	0.2%	5.2%	0.1%
Myanmar	102,824	0.1%	56,223	0.0%	157,812	0.1%	5.5%	0.0%
Rest of the world	17,682,592	20.8%	29,736,297	17.9%	42,137,955	17.8%	11.5%	16.1%

Source: ASEANStats.

On the import side, China is the largest origin country, with a share of 27.7% in 2018, followed by the Republic of Korea (hereafter, Korea) (20.1%) and Japan (8.0%). More than half (54.8%) of the import growth between 2010 and 2018 can be explained by the increase in imports from the top-two origin countries, namely China and Korea. The shares of the United States and EU were only 5.4% and 5.9%, respectively. Viet Nam's imports from Thailand, India, and Myanmar grew

at CAGRs of 10.0%, 11.3%, and 5.5%, respectively, all of which were lower than the CAGR of total imports. As a result, the combined share of these three countries decreased from 8.8% in 2010 to 6.9% in 2018.

Thanks to the bilateral border trade agreement between Lao PDR and Viet Nam signed on 27 June 2015, cross-border trade between the two countries has expanded at a rapid pace over the past four years. According to the latest data of the General Department of Vietnam Customs (2020), bilateral trade, which is effectively cross-border trade, between the Lao PDR and Viet Nam reached nearly US$1,163 million in 2019, which is 2.4 times higher than that in 2010. However, the share of the Lao PDR in Viet Nam's total trade made up for merely 0.22%. This ratio has stayed quite stable at around 0.21%–0.23% in the past few years. In general, Viet Nam has had a high trade surplus with the Lao PDR over the years, but this situation has varied across border check points. Particularly, Viet Nam's trade deficit with the Lao PDR can be observed at the Bo Y–Phoukeua and Cha Lo–Na Phao border check points, while the rest have a trade surplus.

International border crossing points play a crucial role in cross-border trade between Lao PDR and Viet Nam. In recent years, trade via international border gates has accounted for the vast majority (more than 99%) of Viet Nam's total export-import turnover to and from the Lao PDR (Table 2.30). The major export commodities from Viet Nam to the Lao PDR are steel, iron, fruits, vegetables, petroleum products, and vehicles, while major import commodities from the Lao PDR to Viet Nam are rubber, timber, and fertiliser (General Department of Vietnam Customs, 2020a–b).

Amongst the eight international border check points, Cau Treo–Nam Phao and Lao Bao–Dansavanh are the most vibrant border gates in terms of export activities with the highest proportion of Viet Nam's total export turnover to the Lao PDR (38.3% and 31.2%, respectively, in 2018), while Bo Y–Phoukeua and Cha Lo–Na Phao are the most active border gates in terms of import activities with the highest proportion of Vietnam's total import turnover from the Lao PDR (31.7% and 26.2%, respectively, in 2018). At the same time, export and import values via the Tay Trang–Pang Hok international border check point accounted for only 2.9% and 0.7% of Viet Nam's total export and import value in 2018. Viet Nam's import value via the Tay Trang–Pang Hok border gate had the lowest ranking amongst eight international gates.

Table 2.30. Viet Nam's Border Trade with the Lao PDR

		2016				2017				2018			
		Export	Share	Import	Share	Export	Share	Import	Share	Export	Share	Import	Share
Viet Nam - Lao PDR Trade through International Border Check Points													
Viet Nam	**Lao PDR**	**US$ k.**	**%**	**US$ k.**	**%**	**US$ k.**	**%**	**US$ k.**	**%**	**US$ k.**	**%**	**US$ k.**	**%**
Bo Y	Phoukeua	53,198	11.9	81,565	29.1	48,239	9.6	82,536	26.8	39,949	6.9	108,841	31.7
Cau Treo	Nam Phao	173,343	38.9	36,804	13.1	213,759	42.6	39,848	12.9	221,082	38.4	36,177	10.5
Cha Lo	Na Phao	51,838	11.6	87,519	31.2	54,373	10.8	88,466	28.7	49,042	8.5	90,018	26.2
Lao Bao	Dansavanh	101,567	22.8	35,175	12.5	110,814	22.1	71,340	23.2	180,027	31.2	68,105	19.8
La Lay	Lalay	19,613	4.4	22,688	8.1	23,609	4.7	17,989	5.8	30,323	5.3	28,700	8.4
Nam Can	Namkan	21,159	4.7	2,259	0.8	22,990	4.6	1,474	0.5	29,618	5.1	3,007	0.9
Tay Trang	Pang Hok	14,629	3.3	842	0.3	14,759	2.9	325	0.1	16,615	2.9	2,535	0.7
Na Meo	Nam Soy	9,924	2.2	6,496	2.3	9,668	1.9	5,186	1.7	6,530	1.1	4,763	1.4
Sub-total		**445,270**	**99.8**	**273,348**	**97.5**	**498,211**	**99.2**	**307,164**	**99.7**	**573,187**	**99.5**	**342,147**	**99.7**
Viet Nam - Lao PDR Trade through National Border Check Points													
Nam Giang	Daktaoknoy	372	0.1	3,503	1.2	3,558	0.7	357	0.1	2,419	0.4	444	0.1
Huoi Puoc	Nason	353	0.1	226	0.1	277	0.1	123	0.0	37	0.0	449	0.1
Chieng Khuon	Bandan	110	0.0	22	0.0	58	0.0	-	-	392	0.1	21	0.0
A Dot	Ta Vang	16	0.0	35	0.0	74	0.0	-	-	86	0.0	-	-
Hong Van	Cutai	-	-	203	0.1	-	-	-	-	-	-	-	-
Long Sap	Pahang	-	-	-	-	-	-	-	-	-	-	2	0.0
Thong Thu	Namtay	-	-	1,384	0.5	-	-	165	0.1	-	-	136	0.0
Thanh Thuy	Nam On	-	-	36	0.0	-	-	18	0.0	-	-	32	0.0
Cao Veu	Thoong Phila	-	-	-	-	-	-	4	0.0	-	-	11	0.0
Na Cai	Sop Dung	-	-	487	0.2	-	-	19	0.0	-	-	11	0.0
Tay Giang	Kaleum	-	-	-	-	-	-	-	-	-	-	50	0.0
Ca Roong	Nong Ma	-	-	1,168	0.4	-	-	198	0.1	6	0.0	-	-
Sub-total		**852**	**0.2**	**7,064**	**2.5**	**3,967**	**0.8**	**883**	**0.3**	**2,940**	**0.5**	**1,155**	**0.3**
Total		**446,122**	**100.0**	**280,412**	**100.0**	**502,178**	**100.0**	**308,047**	**100.0**	**576,126**	**100.0**	**343,302**	**100.0**

Source: Data provided by the General Department of Vietnam Customs during an interview on 17 December 2019.

According to statistics from the Tay Trang Customs Sub-Department,[29] despite limited export–import volume and value, trade relations between Viet Nam and the Lao PDR via the Tay Trang–Pang Hok border gate has recently been expanding. For example, the trade value between Viet Nam and the Lao PDR via the Tay Trang–Pang Hok border gate in 2018 nearly doubled that of 2017, and it is estimated that the figure in 2019 would double that of 2018.

The major export commodities are construction materials, such as stone, cement, and steel (for China's hydropower and road construction projects in the Lao PDR), agricultural products (paddy rice) and temporarily import and re-export goods (via the Lao PDR to China, mainly through Phongsaly and Khua). Especially since early 2019, there are newly exported commodities,

[29] Based on an interview by the MSR on 9 December 2019.

namely durian and sweet potatoes from the southern provinces of Viet Nam, which are transited via the northern provinces of the Lao PDR to China. Trucks with exported durian are permitted to go straight through without transhipment, whereas trucks with exported sweet potatoes are required to be transhipped. Cargos are exported and transited via the Lao PDR to China only, not to Thailand or Myanmar. The major import commodities are mainly forestry goods, especially Thysanolaena (to make brooms).

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Appendix Table 2.1. HS Code (2-digit)

HS	Description
	Part 1. Animal & Animal Products
01	Live Animals
02	Meat & Edible Meat offal
03	Fish & Crustaceans, Molluscs & Other Aquatic Invertebrates
04	Dairy Produce; Birds' Eggs; Natural Honey; Edible Products of Animal origin, Nesoi
05	Products of Animal origin, Nesoi
	Part 2. Vegetable Products
06	Live Trees & Other Plants; Bulbs, Roots & The Like; Cut Flowers & ornamental Foliage
07	Edible Vegetables & Certain Roots & Tubers
08	Edible Fruit & Nuts; Peel of Citrus Fruit or Melons
09	Coffee, Tea, Mate & Spices
10	Cereals
11	Milling Industry Products; Malt; Starches; Inulin; Wheat Gluten
12	Oil Seeds & Oleaginous Fruits; Miscellaneous Grains, Seeds & Fruits; Industrial or Medicinal Plants; Straw & Fodder
13	Lac; Gums; Resins & Other Vegetable Saps & Extracts
14	Vegetable Plaiting Materials & Vegetable Products, Nesoi
15	Animal or Vegetable Fats & Oils & Their Cleavage Products; Prepared Edible Fats; Animal or Vegetable Waxes
	Part 3. Foodstuffs
16	Edible Preparations of Meat, Fish, Crustaceans, Molluscs or Other Aquatic Invertebrates
17	Sugars & Sugar Confectionary
18	Cocoa & Cocoa Preparations
19	Preparations of Cereals, Flour, Starch or Milk; Bakers' Wares
20	Preparations of Vegetables, Fruit, Nuts, or Other Parts of Plants
21	Miscellaneous Edible Preparations
22	Beverages, Spirits & Vinegar
23	Residues & Waste From The Food Industries; Prepared Animal Feed
24	Tobacco & Manufactured Tobacco Substitutes
	Part 4. Mineral Products
25	Salt; Sulfur; Earths & Stone; Plastering Materials, Lime & Cement
26	ores, Slag & Ash
27	Mineral Fuels, Mineral Oils & Products of Their Distillation; Bituminous Substances; Mineral Waxes
	Part 5. Chemicals & Allied Industries
28	Inorganic Chemicals; organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes
29	Organic Chemicals
30	Pharmaceutical Products
31	Fertilizers
32	Tanning or Dyeing Extracts; Tannins & Derivatives; Dyes, Pigments & Other Coloring Matter; Paints & Varnishes; Putty & Other Mastics; Inks
33	Essential Oils & Resinoids; Perfumery, Cosmetic or Toilet Preparations
34	Soap Etc.; Lubricating Products; Waxes, Polishing or Scouring Products; C&les Etc., Modeling Pastes; Dental Waxes & Dental Plaster Preparations
35	Albuminoidal Substances; Modified Starches; Glues; Enzymes
36	Explosives; Pyrotechnic Products; Matches; Pyrophoric Alloys; Certain Combustible Preparations
37	Photographic or Cinematographic Goods
38	Miscellaneous Chemical Products
	Part 6. Plastics & Rubbers
39	Plastics & Articles Thereof
40	Rubber & Articles Thereof
	Part 7. Raw Hides, Skins, Leather, & Furs
41	Raw Hides & Skins (Other Than Furskins) & Leather
42	Articles of Leather; Saddlery & Harness; Travel Goods, H&bags & Similar Containers; Articles of Gut (Other Than Silkworm Gut)

	Part 8. Wood & Wood Products
44	Wood & Articles of Wood; Wood Charcoal
45	Cork & Articles of Cork
46	Manufactures of Straw, Esparto or Other Plaiting Materials; Basketware & Wickerwork
48	Paper & Paperboard; Articles of Paper Pulp, Paper or Paperboard
49	Printed Books, Newspapers, Pictures & Other Printed Products; Manuscripts, Typescripts & Plans
	Part 9. Textiles
50	Silk, Including Yarns & Woven Fabrics Thereof
51	Wool & Fine or Coarse Animal Hair, Including Yarns & Woven Fabrics Thereof; Horsehair Yarn & Woven Fabric
52	Cotton, Including Yarns & Woven Fabrics Thereof
53	Vegetable Textile Fibers Nesoi; Yarns & Woven Fabrics of Vegetable Textile Fibers Nesoi & Paper
54	Manmade Filaments, Including Yarns & Woven Fabrics Thereof
55	Manmade Staple Fibers, Including Yarns & Woven Fabrics Thereof
56	Wadding, Felt & Nonwovens; Special Yarns; Twine, Cordage, Ropes & Cables & Articles Thereof
57	Carpets & Other Textile Floor Coverings
58	Special Woven Fabrics; Tufted Textile Fabrics; Lace; Tapestries; Trimmings; Embroidery
59	Impregnated, Coated, Covered or Laminated Textile Fabrics; Textile Articles Suitable For Industrial Use
60	Knitted or Crocheted Fabrics
61	Articles of Apparel & Clothing Accessories, Knitted or Crocheted
62	Articles of Apparel & Clothing Accessories, Not Knitted or Crocheted
63	Made-Up Textile Articles Nesoi; Needlecraft Sets; Worn Clothing & Worn Textile Articles; Rags
	Part 10. Footwear & Headgear
64	Footwear, Gaiters & The Like; Parts of Such Articles
65	Headgear & Parts Thereof
66	Umbrellas, Sun Umbrellas, Walking-Sticks, Seat-Sticks, Whips, Riding-Crops & Parts Thereof
67	Prepared Feathers & Down & Articles Thereof; Artificial Flowers; Articles of Human Hair
	Part 11. Stone & Glass
68	Articles of Stone, Plaster, Cement, Asbestos, Mica or Similar Materials
69	Ceramic Products
70	Glass & Glassware
71	Natural or Cultured Pearls, Precious or Semiprecious Stones, Precious Metals; Precious Metal Clad Metals, Articles Thereof; Imitation Jewelry; Coin
	Part 12. Metals
72	Iron & Steel
73	Articles of Iron or Steel
74	Copper & Articles Thereof
75	Nickel & Articles Thereof
76	Aluminum & Articles Thereof
78	Lead & Articles Thereof
79	Zinc & Articles Thereof
80	Tin & Articles Thereof
81	Base Metals Nesoi; Cermets; Articles Thereof
82	Tools, Implements, Cutlery, Spoons & Forks, of Base Metal; Parts Thereof of Base Metal
83	Miscellaneous Articles of Base Metal
	Part 13. Machinery & Electrical Machinery
84	Nuclear Reactors, Boilers, Machinery & Mechanical Appliances; Parts Thereof
85	Electrical Machinery & Equipment & Parts Thereof; Sound Recorders & Reproducers, Television Recorders & Reproducers, Parts & Accessories
	Part 14. Transport Equipments
86	Railway or Tramway Locomotives, Rolling Stock, Track Fixtures & Fittings, & Parts Thereof; Mechanical Etc. Traffic Signal Equipment of All Kinds
87	Vehicles, Other Than Railway or Tramway Rolling Stock, & Parts & Accessories Thereof
88	Aircraft, Spacecraft, & Parts Thereof
89	Ships, Boats & Floating Structures

Part 15. Miscellaneous Products	
90	Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical or Surgical Instruments & Apparatus; Parts & Accessories Thereof
91	Clocks & Watches & Parts Thereof
92	Musical Instruments; Parts & Accessories Thereof
93	Arms & Ammunition; Parts & Accessories Thereof
94	Furniture; Bedding, Cushions Etc.; Lamps & Lighting Fittings Nesoi; Illuminated Signs, Nameplates & The Like; Prefabricated Buildings
95	Toys, Games & Sports Equipment; Parts & Accessories Thereof
96	Miscellaneous Manufactured Articles
97	Works of Art, Collectors' Pieces & Antiques
98	Special Classification Provisions, Nesoi
99	Special Reporting Provisions, Nesoi

Chapter 3
Physical Infrastructure

The original alignment of the Trilateral Highway (TLH) is basically a domestic road in Myanmar plus minimal infrastructure to cross the borders with India and Thailand, and, therefore, the development of the TLH had been slow until 2011. Since then, the development of the TLH has been accelerated mainly in terms of physical infrastructure, such as roads, bridges, logistic facilities, such as dry ports, and border-crossing facilities.

At the end of 2018, the Asian Development Bank (ADB) released a series of reports on the comprehensive assessment of the economic corridors designated in the Greater Mekong Subregion (GMS) Economic Cooperation Program (ADB 2018a-h). As illustrated in Figure 1.1, the original alignment and southern route of the eastward extension of the TLH overlap with parts of the network of the GMS economic corridors, while the northern route of the eastward extension does not. ADB's reports are indeed full of valuable information for knowing the current status of the road network in the region. Therefore, our analysis synthesises the information by ADB (2018a–h), most of which is based on an ADB survey conducted in 2017 and up-to-date information obtained in our own survey conducted between the middle of 2019 and January 2020.

3.1. India[1]

The original alignment of the TLH in India is limited to the Indo–Myanmar Friendship Bridge connecting Moreh and Tamu, and some border facilities, such as the integrated check post at Moreh.

[1] As India is not a member of the GMS economic cooperation program, it is not covered in the ADB reports (ADB 2018b-h). This subsection is based on De et al. (2020).

(1) The connecting node between South and Southeast Asia: Imphal and Moreh

Moreh is located in the Chandel district of Manipur. It lies to the southeast of Manipur on the Indo–Myanmar border. Tamu is the corresponding border town of Moreh. About 81% of the local population is involved in non-agricultural activities.[2] Located on the Asian Highway No. 1 (AH-1), Moreh is India's entry point to the countries in Southeast Asia. Being a small border town, however, Moreh itself is not attractive enough as a market nor a production base.

What makes the TLH attractive for Myanmar and Thailand is the vast hinterland behind Moreh. Imphal, the capital city of Manipur, is 110 kilometres (km) away from Moreh, and it constitutes a connecting node of the road network in the North Eastern Region (NER), which is connected further to the remaining large part of India. Currently, road is the only mode of transport for goods and services between Moreh and Imphal. The widening of the existing highway (NH-102) is under construction. This is the main highway, which connects India with Southeast Asia and carries the trade between them.

On the other hand, India's domestic railway network is now being extended to Imphal, with completion expected by 2021, providing another impetus to further enhance the connectivity between Imphal and mainland India. With the concept of the Trans-Asian Railway under the United Nations Economic and Social Commission for Asia and the Pacific, there is a plan to extend the railway from Imphal to Moreh, with a future plan to connect it to the rail network in Myanmar.

(2) Border trade at Moreh

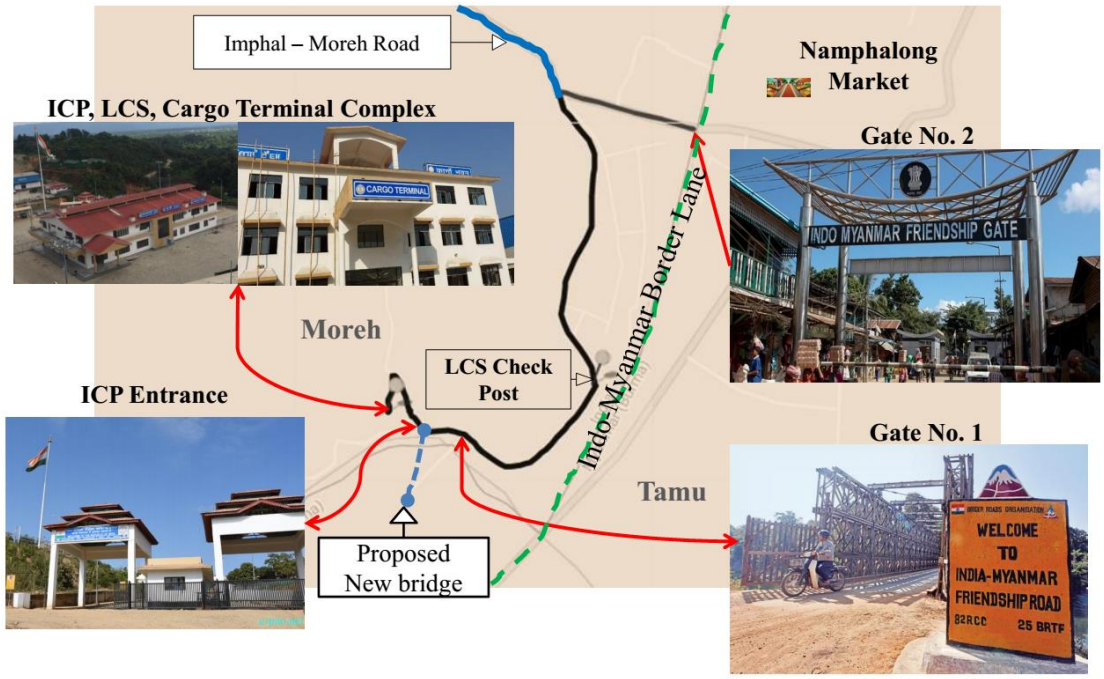
India and Myanmar signed a border trade agreement on 21 January 1994, and border trade came into effect on 12 April 1995. Under this agreement, border trade between the two countries is permitted for selected items to be routed through designated trading points. Cross-border trade is fully functional between India and Myanmar at two Land Customs Stations (LCSs): one in Moreh, facing Tamu in the Sagaing Region of Myanmar, and the other in Zokhawthar in Mizoram, facing Rihkhawdar (or Rih, Reed) in the Chin State of Myanmar.

The cross-border trade at Moreh takes place through Gate No. 1 and Gate No. 2 (Figure 3.1). Gate No.1 is the regulated trade route as per the standard operating procedure between the two countries. The LCS and the Integrated Check Post (ICP) are located near Gate No. 1. Gate No. 2 is

[2] According to the census in 2011.

an entry or exit point for passengers and head-load cargoes between India and Myanmar. Namphalong market in Tamu, adjacent to Gate No. 2, is a well-developed market. It sells not only goods from Myanmar but also those originating from third countries, such as China, the Republic of Korea, Japan, and Thailand, amongst others. Namphalong market has active Indian buyers that take permits from the gate for entry, pay for the goods purchased in Indian rupees, and return with head-loads. There is an absence of customs checks and a lack of health and safety checks of the products that are coming through Gate No. 2. Trade through Gate No.2 has been permitted only for local residents who are settled within a radius of 40 km on both sides of the border of India and Myanmar. Moreh's main market, commonly known as the Morning Bazaar, is located near the border of Gate No. 2.

Figure 3.1. Border Infrastructure at Moreh



Source: RIS Survey (2019).

(3) Integrated Check Post

Moreh Integrated Check Post (ICP) is a trade centre for facilitating bilateral trade between India and Myanmar as well as the movement of passengers across the border. Moreh ICP started its operations from 8 August 2018 and has a total area of 38.34 acres. The Land Port Authority of India is yet to get physical posession of the ICP from the Government of Manipur. The Government of India has approved about Rs 130 million for the development of Moreh ICP.

The operations at Moreh ICP commenced with a passenger terminal on 15 March 2018, and immigration facilities started functioning from 8 August 2018. Since then, Moreh ICP has started handling passengers coming to India. In FY2018, Moreh ICP handled 1,436 incoming passengers from Myanmar and 1,620 outgoing passengers from India to Myanmar.[3] The majority of the people from Myanmar come to Manipur for medical treatment, while some of them also enter India for tourism purposes. For example, when there is a sports festival, such as for football, the inflow of tourists from Myanmar increases. Moreh ICP is expected to generate employment, promote trade between India and Myanmar, and foster connectivity and trade facilitation with the neighbouring countries.

The construction of Moreh ICP is almost at the completion stage, and includes a passenger terminal, cargo terminal, customs processing, immigration clearance, import warehouse, electric sub-station, parking, rummaging sheds, weigh bridge, security and surveillance, banks/ATM, drivers' rest area, public conveniences, and monumental national flag. The current status of facilities at ICP Moreh is given in Table 3.1.

Table 3.1. Current Status of Facilities at Moreh ICP

Facilities	Current Status
Warehousing	Cargo terminal construction is in the completion stage, with the capacity of 800 square meter storage area for dry cargo. It will be ready by end of 2019.
Cold Storage	Construction is ongoing with the capacity of 400 square meter storage area for perishable goods.
Banking	Provision for banking space is ready and rental free but not yet functional. LCS has invited SBI and UBI to open a branch.
Foreign Exchange Facility	UBI is authorised to do foreign exchange.
Weighing Bridge	Completed.
Plant Quarantine	Not ready yet.
FSSAI	Space is allotted for the laboratory of FSSAI and is yet to come. FSSAI activities are managed by Manipur State Food Safety Department. All the laboratories under FSSAI should be NABL certified.
Internet Bandwidth	Current speed of internet is only 8 mbps, which has to be enhanced further. At present, trade at Moreh through LCS is handled on manual basis. LCS planning to introduce Electronic and Data Interchange (EDI), which require more internet speed.
Human Resources	At ICP: 1 regular post and 13 people are presently working as contractual basis.
	At LCS: 3 inspectors, 2 havildars and 1 superintendant.
Security	4 security persons deployed by Assam Rifles
Electricity	Power supply is available but experiencing occasional power cut. In case of power cut, diesel generator is available.
Medical facility	Not yet ready.
Public Conveniences	Space for public conveniences is available and already functional.
Parking Space	Available.

Source: RIS Survey (2019).

[3] See the website of the Land Port Authority of India (www.lpai.gov.in) for further details.

The Moreh LCS has been housed in a departmental building located near Gate No. 1 and is being considered to be shifted to the ICP complex. Plant and quarantine facilities are available at Moreh LCS, but they had not been used at the time of the RIS Survey (2019).

(4) Financial infrastructure

Four banks are currently operating in Moreh: State Bank of India (SBI), United Bank of India (UBI), UCO Bank, and Axis Bank. These four banks mostly cater to the demand for banking and other financial services. All of the four banks have one ATM each placed in different locations of Moreh town. Amongst the four, UBI is the officially designated foreign exchange dealer in Moreh. Banking and financial transactions are substantial, taking into account the level of economic activities in Moreh and the reported border trade taking place between the two countries through the Moreh–Tamu border.

Based on preliminary sources, the current average daily deposits of SBI and UBI are to the tune of Rs 4 million to 5 million and Rs 10 million, respectively. SBI has approximately 7,000 savings accounts and 300 current accounts, whereas UBI maintains 8,000 savings accounts and 300 current accounts. In the case of border trade, no special payment arrangement including a letter of credit (L/C) exists between India and Myanmar. Although there is no L/C provision, trade-related transactions, which are mostly conducted through current accounts, constitute a substantial part of the banking business in Moreh. The RIS Survey (2019) finds that around 90% of the total deposit mobilisation of UBI per day (approximately Rs 9 million) is linked to border trade. Likewise, the current account transactions of SBI are approximately Rs 3 million to 4 million per day.

Banks operating in Moreh expect that local business and trade will grow once the TLH becomes operational. While the need for more human resources is often highlighted, with technological modernisation and proper clearing and settlement mechanisms, banks will be able to handle the possible rise in demand for financial services associated with higher border trade.

Banks also provide financing to local traders and businesses along with mandated commitments of priority sector lending and Micro Units Development and Refinance Agency (MUDRA) loans.[4]

[4] MUDRA is a refinancing institution. MUDRA does not lend directly to micro entrepreneurs or individuals. MUDRA loans under Pradhan Mantri Mudra Yojana (PMMY) can be availed of from a nearby branch office of a bank, NBFC, or MFI, etc.

Loans extended by SBI total approximately Rs 170 million, and about 100 small and medium-sized enterprises are financed by the bank. Similarly, UBI has provided 300 MUDRA loans, mostly for the purpose of variety stores and shops. While the lending portfolio of UBI has grown over the years, the bank does not have a large exposure to any single borrower, thereby reducing the cumulative risk of default.

In the case of trade-linked banking services, both SBI and UBI are considering the proposal of opening extension counters at Moreh ICP especially for foreign exchange-related services. Both SBI and UBI underscore the importance of improving the trade environment in the Imphal–Moreh region and suggest a number of policy and institutional reforms. As informal trade with Myanmar through Moreh continues to remain a challenge, banks believe in the positive outcomes of incentives like bank guarantees, L/C, faster payment settlement, bilateral banking arrangements, rupee trade, and so on. In particular, UBI is keen to provide bank guarantees for local traders engaged in border trade. Since foreign exchange transactions are likely to increase in the future, UBI needs proper technology for validating foreign currency notes, as the risk of fake currency circulation is high. Despite being the official dealer of foreign exchange, the bank does not sell any foreign currency to traders. Customers and traders are only allowed to convert foreign currencies to the Indian rupee.

(5) Challenges in physical infrastructure

There are several challenges to facilitating border trade through the Moreh–Tamu border, including a shortage of staff, lack of electricity, lack or absence of good quality internet, and an absence of accommodation for officials and other social infrastructure. At the moment, only the passenger terminal has been opened in Moreh ICP, and it has started accepting people coming from Myanmar to India and vice versa. The cargo terminal is not yet ready, but the construction is at the final stage. One of the biggest challenges is inadequate financial infrastructure to support border trade. Reflecting its history of barter trade, border trade at Moreh–Tamu does not happen through L/C issued by financial institutions. In order to expand border trade, there must be a formal banking facility. Transactions between the two countries should follow an L/C system.

Sagaing province of Myanmar is a big market for Indian goods. Greater cooperation to promote trade and investment is needed between Manipur and Sagaing. Completion of the construction

of the TLH, including the replacement of bridges along the Tamu–Kyigone−Kalewa road in Myanmar will strengthen the trade and investment linkages between India and Myanmar.

There are several ways to facilitate cross-border trade and the movement of people by taking advantage of the development of information and communication technology. For example, an electronic mode for trade, instead of a manual system, must be introduced. E-visas are also yet to be accepted at the Moreh border by Indian immigration. However, border passes are pending from the Indian side, whereas the Myanmar side has already started border passes.

In view of international trade at Moreh and Tamu, food safety should be strengthened, both at the Moreh border and Imphal. The activities of the Food Safety and Standards Authority of India (FSSAI) are managed by the Manipur State Food Safety Department. All the laboratories under the FSSAI should be certified by the National Accreditation Board for Testing and Calibration Laboratories (NABL). The micro-biology section of the FSSAI Lab is not yet developed. A small office opened in Moreh in December 2018 to check chemicals in processed food items. However, the office is now closed. FSSAI's Manipur office is issuing NABL certificates from time to time.

3.2. Myanmar

As pointed out above, most of the original alignment of the TLH is in Myanmar's territory. Although road infrastructure in Myanmar has improved year by year, several sections still require repair or upgrading works. At the end of 2018, ADB released a series of reports comprising a comprehensive assessment of the economic corridors designated in the GMS Economic Cooperation Program (ADB 2018a-h). As illustrated in Figure 1.1, the original alignment of the TLH in Myanmar overlaps with parts of the network of the GMS economic corridors, while the northern route of the eastward extension does not. ADB's country report for Myanmar (ADB 2018e) is indeed full of valuable information on the current status of the road network in the country. Therefore, our analysis below synthesises the information in ADB (2018e), most of which is based on the ADB survey conducted in 2017, and up-to-date information obtained in our own survey conducted between the middle of 2019 and January 2020.

As one of the main objectives of this field survey is to update the information relative to ADB (2018e), the team made an assessment based on the following.

- The physical condition is reported in five assessments, such as ‘very good’ ‘good’, ‘fair’, ‘bad’, and ‘very bad’. Observations regarding road conditions are based on factors such as the state of the road surface, road maintenance, and adequacy of road signs and drainage facilities.
- The road classification is based on the Asian Highway standards: Primary (four or more lanes, control access); Class I (four or more lanes); Class II (two lanes); and Class III (two lanes). Pavement is asphalt or cement for Primary, Class I, and Class II, and double bituminous treatment for Class III.

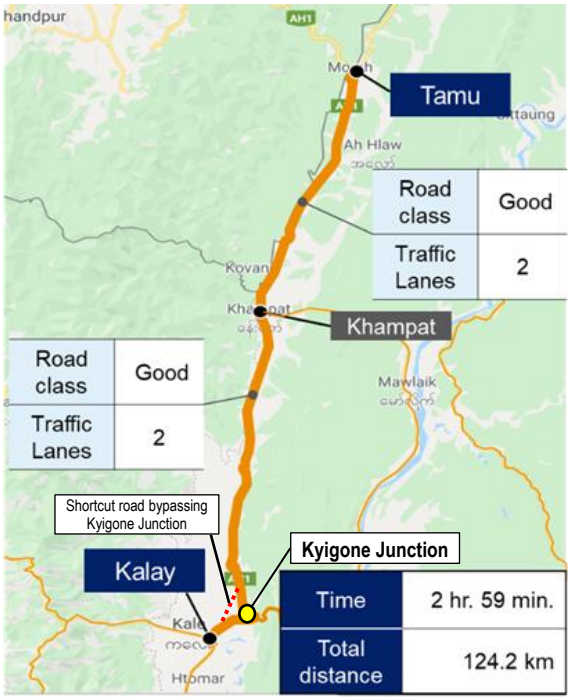
In the following subsections, the TLH route in Myanmar is assessed in four sections, namely (1) Tamu–Kyigone–Kalay; (2) Kyigone–Mandalay; (3) Mandalay–Yangon; (4) Yangon–Myawaddy; and (5) Mandalay–Keng Lap (Lao PDR border).

3.2.1. Tamu–Kyigone–Kalay

Tamu is a town in the Sagaing Region adjacent to the city of Moreh in the Manipur State of India and serves as the largest trading point with India, amongst three main border points, namely Tamu, Rhi (Reed), and Htan Ta Lan. The Tamu border customs post was opened in 1995 after Myanmar and India signed a border trade agreement.

The entire route between Tamu and Kalay (Kalemyo) is a two-lane road. There is one lane on both sides, and each lane is wide enough to have a shoulder. When the MSR conducted a field survey in January 2020, it took 2 hours and 58 minutes from Kalay to the India–Myanmar Friendship Bridge in Tamu, excluding break times and stops. The surface condition was ‘good’ throughout the road (Figure 3.2 and Photo 3.1).

Figure 3.2. Tamu–Kalay Section



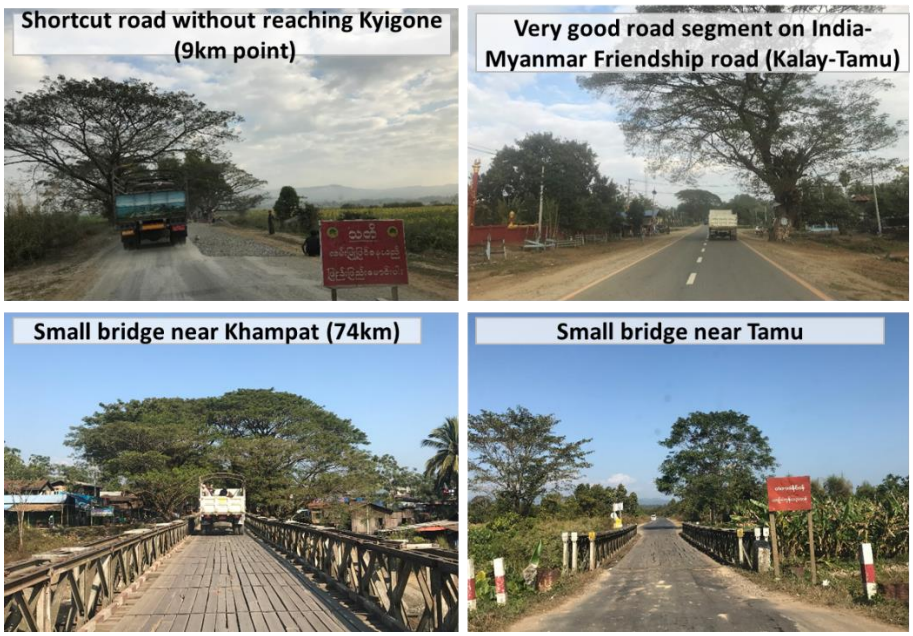
Source: Drawn by MSR based on ©GoogleMap 2020.

Departing from Kalay to Tamu, at the 8 km point from Kalay along the AH-1 is the Kyigone Junction. The road diverges to the north heading to Tamu and also eastward to Kalewa. But when going directly from Kalay top Tamu, a shortcut road is available to bypass Kyigone Junction.

Departing from Tamu to the south, the first 160 km stretch of the TLH is also known as the India–Myanmar Friendship Highway (IMFH) and was 'first built in 2001 by the Border Roads Organisation (BRO) under a bilateral pact with Myanmar. The BRO maintained the road until 2009, when it was handed over to Myanmar.'[5] Because of this difference from other Built-Operate-Transfer (BOT) projects, the entire route of the IMFH is toll-free. Along the route between Tamu to Kalay, there remain a total of 49 small one-lane bridges, the construction of which dates back to the 1940s (Photo 3.1). These bridges cause long waiting times for vehicles from both sides (Photo 3.2).

[5] 'The Road to East: Connecting India, Myanmar and Thailand; Gateway to ASEAN', by Nirupama Subramanian, *The Indian Express*, 5 September 2018.

Photo 3.1. Condition of Roads and Bridges between Kalay–Tamu



Note: The distances in the photos are measured from Kalay.

Source: MSR (2020).

Photo 3.2. A bridge Causing Waiting Time (Kalay–Tamu)

Source: MSR (2020).

3.2.2. Kyigone–Mandalay

(1) Three routes connecting Kyigone and Mandalay

There are three optional routes connecting Mandalay and Kyigone, which is a major junction to go to Tamu from Mandalay (Figure 3.3). The first route through Gangaw overlaps with AH-1. The second route goes through Shwebo, Ye-U, and Kalewa. The third is through Monywa and Yargyi, which is under upgrading work with the assistance from India and constitutes a part of the TLH.

Figure 3.3. Three Routes between the Tamu–Mandalay Section

Source: Created by MSR based on ©GoogleMap 2020.

Table 3.2. Comparison of Three Routes from Mandalay to Tamu

Road Utilisation	Pros	Cons
Gangaw route (613km, 13h16m): *Mandalay – Monywa – Gangaw – Kalay – Kyigone – Tamu*		
Most used road among the 3 routes for both passenger vehicle and trucks. About 90%(1) of the trucks use this route.	Road condition is good and logistic companies that carry goods from Mandalay–Tamu utilise the Gangaw Route(2).	Longest distance and time among the 3 routes.
Ye-U/Shwebo route (478km, 12h10m): *Mandalay – Shewbo – Ye-U – Kalewa – Kygone – Tamu*		
About 10%(1) of trucks are utilising it as the shortest route to Mandalay.	Shortest distance directly from Mandalay to Tamu through Ye-U. Compared to Yargi Route, the road condition is better(2).	Some sections are in poor road conditions with mountainous curves and unpaved surface. Without passing Monywa, the capital of Sagaing State.
Yargyi route (480km, 11h57m): *Mandalay – Monywa – Yargyi – Kalewa – Kygone – Tamu*		
Only used by inhabitants on the Yargyi route or trucks and vehicles for upgrading/ construction work.	Shortest route through from Mandalay going through Monywa, the capital of Sagaing State.	Many sections are in poor road conditions with mountainous curves and unpaved surface, logistic companies do not use this road. Inaccessible during rainy season.

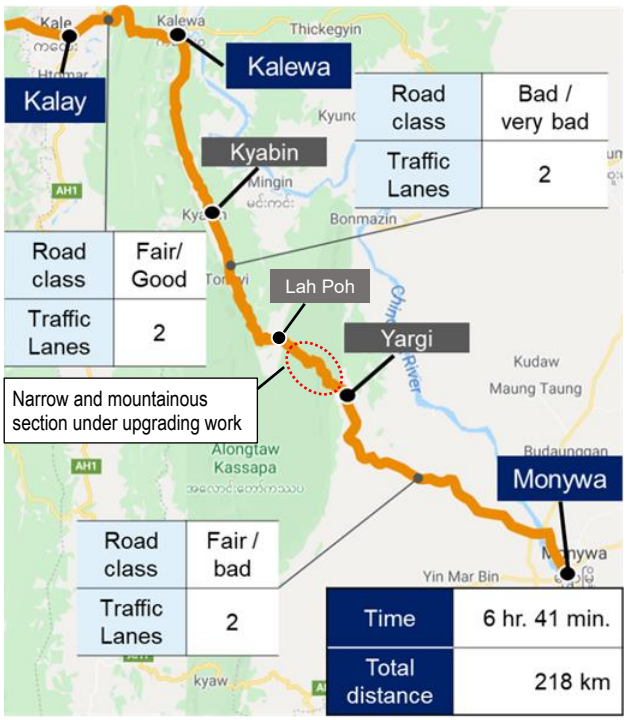
Notes: (1) MSR interview with a Ministry of Commerce official. (2) MSR interview with logistics companies based in Mandalay. (3) Distance and time are measured with ©GoogleMap 2020 from the Mandalay–Tamu section taking each route (January 2020).
Source: MSR (2020).

For commercial use, the most used route is the one through Gangaw because of its relatively well-maintained road condition. From interviews with logistics companies based in Mandalay,[6] about 90% of them use the Gangaw route when sending goods to Tamu. Logistics companies have refrained from taking the Yargyi route as there are mountainous sections with many steep curves and unpaved segments that can cause damage to the vehicles. For the Ye-U/Shwebo route, the Mandalay−Shwebo section is easy to travel. However, the Kaduma−Kalewa section is a difficult road section to travel due to its mountainous terrain. During the rainy season, which generally runs from June to September, the Myanmar government does not prohibit vehicles taking any of its routes. The Ye-U−Shwebo route is also accessible during the rainy season. Logistics companies on their own accord stay away from the Yargyi route in both seasons.

Designated as a part of the TLH, the Government of India is actively providing aid to upgrade the section between Kalewa and Yargyi, which is currently avoided by logistics services providers because of its mountainous terrain and poor road conditions. From the Indian perspective, the Kalewa−Yargyi section is a natural extension of the existing IMFH from Tamu to Kalewa. As the updating work is ongoing, the current status of the road condition is largely very bad (Figure 3.4). The Yargi–Monywa section was developed and managed by the Myanmar side (Monywa Group of Companies) under a BOT arrangement.

[6] The MSR team interviewed Mandalay-based logistics companies, such as Shwe Pyi Tan Logistics and Tint Tine Aung Logistics, etc. in January 2020.

Figure 3.4. Overview of the Yargyi Route

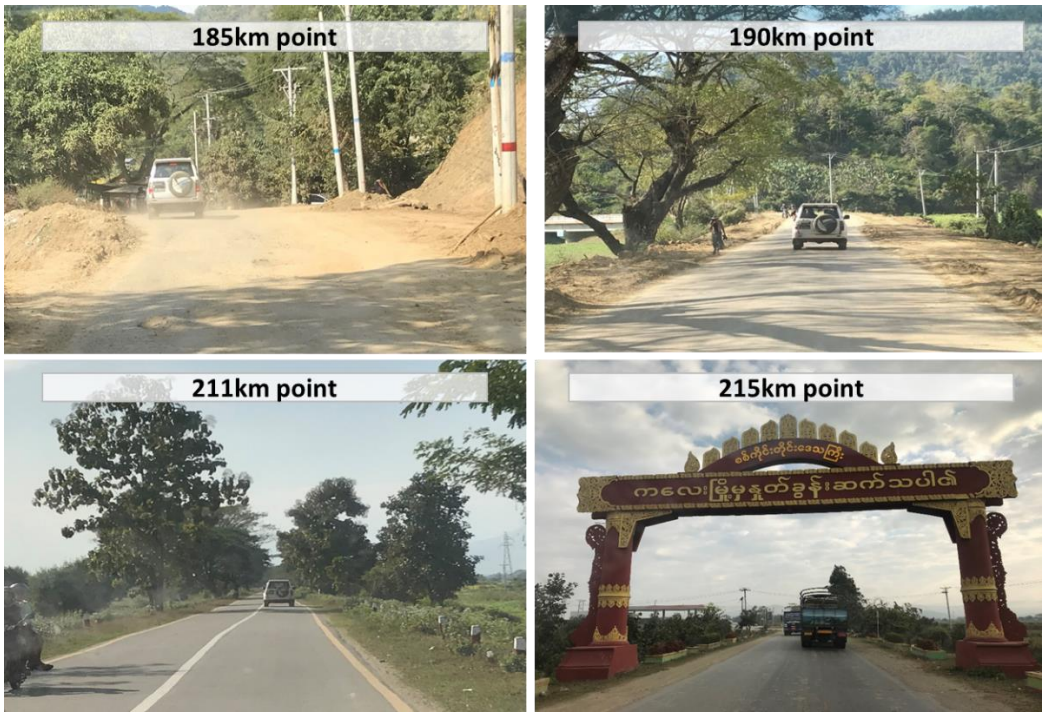


Source: Drawn by MSR based on own assessment and ©Google Map 2020.

(2) Kalay–Kyigone–Kalewa

The road section between Kalewa and Kalay comprises two narrow lanes, with the Myit Thar River on one side and rocky mountains on the other side. Moreover, there are 21 old bridges, which have a load-bearing capacity of 13 tons along the road. It takes about 1 hour between Kalay and Kyigone and 50 minutes between Kyigone and Kalewa. The surface conditions are largely 'good' except for 21 narrow and old bridges along the road, which do not allow two vehicles to pass each other (Photos 3.3 and 3.4).

Photo 3.3. Road Condition at the Kalay–Kalewa Section



Source: MSR (2020). The distances in the photos are measured from Monywa.

Photo 3.4. Old and Narrow Bridges at the Kalewa–Kyigone Section

Source: MSR.

(3) Kalewa–Yargyi

The ongoing upgrading work on the Kalewa−Yargyi section is a challenging attempt to exploit the potential of the Yargyi route. As summarised in Table 3.2, the Yargyi route is an effective way to connect Monywa, the capital city of Sagaing Region, to Tamu by the shortest distance. However, the mountainous terrain of the Yargyi−Lar Poh section, the topographical vulnerability of the

Kalewa–Lar Poh section to rain,[7] as well as the scarcely populated roadside areas have long kept the Yargyi route underdeveloped, underutilised, and behind the Gangaw route. The upgrading of the Kalewa–Yargyi section is expected not only to open wide economic opportunities to the roadside areas but also to establish the shortest route connecting the capital cities of the adjacent regions, Sagaing in Myanmar and Manipur in India, as well as enhancing the resiliency of the TLH by offering another alternative route.

As the upgrading work is ongoing, the Kalewa–Yargyi section is currently inadequate for long-haul transportation for large trucks in particular. However, once completed, it could change the flow of goods, vehicles, and people.

Photo 3.5. Upgrading Work on the Kalewa–Yargyi Section

Source: MSR (2020), on 13 January 2020.

[7] As Figure 3-3 indicates, the Kalewa–Lar Poh section passes straight through a narrow and flat area sandwiched by steep mountain ranges. During the rainy season, the rain that falls on the mountains pours into the valley floor and makes the road impassable.

Photo 3.6. Mountainous Section between Lah Poh and Yargyi

Source: MSR, on 13 January 2020.

(4) Yargyi–Monywa

Throughout the road, the Monywa–Yargi section is two lanes, which are in relatively good condition and mostly paved with asphalt. The remaining gravel roads have been under upgrading work.

Photo 3.7. Road Conditions at the Monywa–Yargyi Section

Source: MSR (2020). The distances in the photos are measured from Monywa.

(5) Monywa–Mandalay

The Mandalay–Monywa route, which also serves as AH-1,[8] is smooth and commercial vehicles including trucks can easily travel on both lanes.

It takes 2 hours and 38 minutes from Mandalay Airport to the centre of Monywa city, excluding break times and stops. Throughout the route, there are two lanes on both sides. The team assessed the road condition as 'good' throughout the road (Figure 3.5).

Figure 3-5. Monywa–Mandalay Section

Source: Drawn by MSR based on own assessment and ©Google Map 2020.

(6) India's commitment to the IMFH[9]

The upgrading plans for the road and bridge infrastructure between Tamu and Monywa missed their original deadlines and were modified in recent years. In 2012, during bilateral talks, former Myanmar President Thein Sein and Indian Prime Minister Singh agreed that India was to undertake the repair and upgrading of 71 bridges on the IMFH and the upgrading of the Kalewa−Yargi road segment to highway standard. While Myanmar was to undertake upgrading the Yargi−Monywa stretch to highway standard by 2016[10] that was not completed as planned.

[8] AH-1 is from Ayeyarwady Bridge in Yadanarpon to before entering Chaung-U.
[9] This subsection is based on De et al. (2020).
[10] 'Joint Statement by India and Myanmar on the State visit of Prime Minister of India to Myanmar', 28 May 2012, available at the website of Ministry of External Affairs, Government of India.

The current Modi administration of India is aligned with the decision made by the previous administration. In 2015, the newly elected Modi government approved the construction of 69 bridges on the Tamu−Kyigone−Kalewa (TKK) section [11] at the cost of Rs 3,710 million (approximately US$ 52 million [12]) and this was projected to be completed by mid-2019, [13] however again, the route was not completed on schedule.

In 2019, the Ministry of Road Transport & Highways in India announced the upgrade and construction of bridges along the TKK section (149.7 km) and the construction of the Kalewa−Yargyi section (120.7 km) of the TLH. These were planned in accordance with a grant from the Indian government (Press Information Bureau, India and Ministry of Road Transport & Highways, 2019). According to information from meeting with the Department of Highways, Ministry of Construction, the Kalewa section was supported by grant aid from India amounting to Rs 11.77 billion (US$ 200 million). For the Myanmar side, the Yargyi−Monywa section is being upgraded by Monywa Group of Companies under a BOT system.

The construction has been scheduled to be completed in 2021, three years from the date of commencement in 2018.[14] The Ministry of Road Transport & Highways in India approved a total of Rs 14.59 billion (US$ 205 million) for the Kalewa−Yargyi section and Rs 3,715.8 million (US$ 51.8 million) for the TKK section. From the total amount, in 2019, Rs 1,883.2 million (US$ 26 million) for the Kalewa−Yargyi section and Rs 48.4 million (US$ 0.7 million) for the Kalewa−Yargyi section was released from the Indian government fund (Press Information Bureau, India and Ministry of Road Transport & Highways, 2019).

The project owner, Ministry of External Affairs (MEA), India, hired the National Highways Authority of India (NHAI) as a consultant and authority engineer for both the owner and client sides. There is also a contractor with an engineering procurement construction (EPC) type, which does all the engineering tasks and procurement and construction work. Until now, about 20% has been completed.

[11] The TKK section is identical to the original alignment of the IMFH. As the Kalewa–Yargyi section is regarded as an extended part of the IMFH, the original IMFH is sometimes called the TKK section in India's official documents.

[12] Converted to US dollars by applying the rate of US$1.00 = Rs71.385.

[13] 'Construction of 69 Bridges including Approach Roads on the Tamu-Kyigone-Kalewa road section of the Trilateral Highway in Myanmar', Press Information Bureau, India, 20 December 2015.

[14] The commencement date is according to the interview with the border official.

3-2-3. Mandalay–Yangon

There are two main routes connecting Yangon and Mandalay (Figure 3-6).

The old route is along the National Highway No. 1, which was built before 1945. The route passes through major cities, such as Bago, Taungoo, Pyinmana, and Meiktila. As a National Highway, it is administered by the Ministry of Construction, but the actual operation, including toll collection, has been done by seven private companies under respective BOT contracts.[15] This route is also a part of AH-1[16] as well as the No. 5 sub-corridor of the GMS North–South Economic Corridor (NSEC-5).

The new route, known as the Yangon–Mandalay Expressway, was constructed from October 2005 to December 2010. The high specification of the new expressway, in terms of the number of lanes and carriageways, the surface condition based on the International Roughness Index, and the shorter stretch, cut the travel time in half from 14 hours to 7 hours. However, the use of the Yangon–Mandalay Expressway by trucks has been strictly restricted, mainly from the viewpoint of road safety. The conditions are as follows. (1) Only trucks carrying perishable items such as agriculture products, fish, meat, and so on, can apply for permission. (2) Trucks have to be equipped with a telematics system, which enables the control centre to trace where the trucks are. (3) Trucks that have over 22 wheels and 6 axels cannot apply for permission. (4) The maximum weight for trucks with load is 48 tons in the rainy season and 50.5 tons in the dry season. Because of these restrictions, the numbers of trucks applying for permission to legally use the Yangon–Mandalay Expressway have not increased much. As a result, most of the trucks serving the nation's arterial road between Yangon and Mandalay still drive on the older, longer, and rougher Yangon–Mandalay Highway. According to a policy note prepared by ADB for the Ministry of Transport and Communications, 'allowing trucks on the expressway would immediately save US$ 110 million a year – more than 10% of total road freight costs. With some additional investment in the road, this figure could rise to US$ 200 million' (Manch and Kyaw Lin Htoon 2017).

[15] Toll gates along the Yangon–Mandalay Highway have been operated by seven private companies, namely (1) Oriental Highway (Asia World), (2) Max Myanmar, (3) Shwe Than Lwin, (4) Shwe Taung, (5) Kanbawza, (6) Yuzana, and (7) Thawdawin, under respective BOT contracts. Trucks have to pay tolls of about MK300,000 per return trip, which is much more expensive than MK22,500 for buses making a full trip on the Yangon–Mandalay Expressway.

[16] Google Maps shows that the AH-1 section between Mandalay and Nay Pyi Taw passes through the Yangon–Mandalay Expressway (new) instead of the Yangon–Mandalay Highway (old). According to the Asian Highway Database, submitted by the Myanmar Government, however, the section of the AH-1 passes through the Yangon–Mandalay Highway (old).

Figure 3.6. New Expressway and Old Highway Connecting Yangon and Mandalay

Source: Manch and Kyaw Lin Htoon (2017).

Regarding the quality of road infrastructure, even the old highway is good enough to accommodate long-haul large trucks and vehicles throughout the route, although there are sections under upgrading work (Photo 3.8). However, the new expressway is of course in a better condition (Photo 3.9).

Photo 3.8. Road Condition at the Yangon–Mandalay Highway (Old Route)

Source: MSR (2020).

Photo 3.9. Toll Gates at the Yangon–Mandalay Expressway (New Route)

Source: MSR (2020).

3-2-4. Yangon–Myawaddy section

(1) Overview

The GMS East–West Economic Corridor in Myanmar, which starts from Thilawa adjacent to Yangon and ends in Myawaddy bordering Thailand, lies on a 457 km route through Bago, Hpa Yar Gyi, Waw, Kyaikto, Bilin, Thaton, Hpa-An, and Kawkareik (Figure 3.7). This section overlaps with the original alignment of the TLH.

Figure 3.7. Overview of the Yangon–Myawaddy Section

Source: Drawn by MSR based on ©Google Map 2020.

The importance of this route has increased particularly since the inauguration of the Second Thai–Myanmar Friendship Bridge in 2019, with the expectation of enhancing physical connectivity between Thailand and the Thilawa Special Economic Zone (SEZ) in the outskirts of Yangon. Moreover, this route will be the bloodline of Myanmar as far as trade and commerce are concerned since it connects regional hubs like Bago and Mawlamyine with the business capital of Myanmar, Yangon. The linkages to major infrastructure, such as Hanthawaddy New International Airport in Bago and the SEZs in Thilawa and Dawei, are also expected to accelerate economic development along the route.

(2) Yangon–Hpa Yar Gyi

Our route survey started from Yangon Central Railway Station, which is located downtown, and used the No. 3 main road to exit Yangon (Figure 3.8). Trucks mostly use this road as it reaches to the old Yangon–Mandalay Highway, due to the abovementioned ban on the Yangon–Mandalay Expressway, without passing through the city of Bago, according to our interview with a logistics company. Max Highway Co., Ltd. manages this part of the road under a BOT scheme, and it is well maintained and the road condition is 'good'. Then, we entered the Yangon–Mandalay Expressway, which is four-lane and asphalt-paved, with a 'good' surface condition throughout the section. The travel time from Yangon to Hpa Yar Gyi was approximately 2 hours, excluding break times and stops. Throughout the route, mostly there are two lanes on both sides, which are in good condition. Some parts are asphalt-paved and others are concrete road (Photo 3.10).

Figure 3.8. Yangon–Hpa Yar Gyi Section

Source: Drawn by MSR based on own assessment and ©Google Map 2020.

A ground-breaking ceremony was held on 13 February 2019 for the New Bago Bridge, which is to be opened in 2021 with the objective of enhancing connectivity between Yangon and the Thilawa SEZ by complementing the existing Thanlyn Bridge, which is too old to accommodate heavy trucks.

Photo 3.10. Road Conditions in Hpa Yar Gyi

Source: MSR (2020).

(3) Hpa Yar Gyi–Thaton

The road section between Hpa Yar Gyi and Thaton, which is also a part of AH-1 and the GMS-EWEC, is in good condition and is mostly four-lane asphalt road that is upgraded and maintained regularly. After exiting Waw, our team crossed Sittaung River by Sittaung Bridge at Moke Pa Lin before reaching Kyaikto. The road segment between Moke Pa Lin and Kyaikto is in very good condition. From Kyaikto, AH-1 passes through Bilin and Theinzeik and reaches Thaton (Figure 3.9, Photo 3.11).

There are several infrastructure projects in the pipeline related to the connectivity in this section. First, a new arterial highway between Bago and Kyaikto (76.6 km) is to be developed as a part of ADB's 2nd GMS Highway Modernization Project (No.50381-006), which will be completed by the end of 2024. The new arterial highway is designed to be 32 km shorter than the current alignment, and the travel time will be halved by not passing through Hpa Yar Gyi, where various

problems caused by increased urbanisation and traffic congestion call for a bypass road. A tender for a consulting service for detailed technical preparation was closed on 20 December 2019. This process is expected to be completed in Q1 2021, presumably followed by physical construction work. Second, as a part of the new arterial highway between Bago and Kyaikto, a new bridge (2.3 km) over the Sittaung River will be constructed by the Ministry of Construction with assistance from the Japan International Cooperation Agency. The expected year of completion is 2026.[17]

Figure 3.9. Hpa Yar Gyi–Thaton Section

Source: Drawn by MSR based on own assessment and ©Google Map 2020.

[17] According to Myanmar Times (2020), 'work is expected to start soon on a new road link connecting Thanlyin in the Yangon Region to Bago in the Bago Region. The project, expected to cost US$160 million (MK228.5 billion), will be built with help from JICA.'

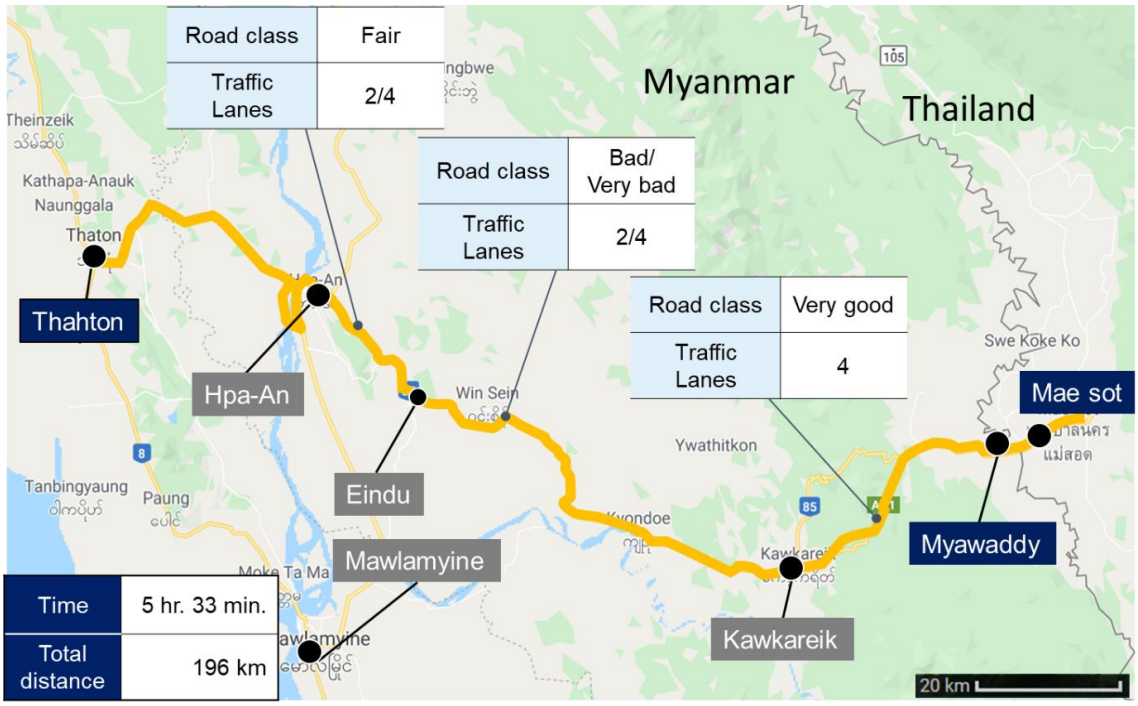
Photo 3.11. Road Conditions in Hpa Yar Gyi–Thaton

Source: MSR (2020).

(4) Thaton–Myawaddy

The road section between Thaton and Myawaddy can be divided into two. The road condition from Thaton through Hpa-An until Eindu is 'good', including some 'fair' sections. The section between Eindu and Kawkareik road is still under upgrading and therefore the surface condition is 'bad'. The Kawkareik–Myawaddy road, which was upgraded in 2015 with help from Thailand, is considered one of the highest quality highway roads in Myanmar (Figure 3.10).

Figure 3.10. Thaton–Myawaddy Section



Source: Drawn by MSR based on own assessment and ©Google Map 2020.

Thaton–Eindu

In 2017, the Myanmar government approved a proposal allowing the Thai government to help improve the condition of a 68 km road that serves as an important link in the GMS–EWEC transport route. The Thai cabinet endorsed a plan to help Myanmar improve the 68 km section of the road linking Eindu and Thaton in southern Myanmar at a cost of B 1.8 billion that will be shouldered by the Thai government (Bangkok Post 2017). However, after numerous negotiations between both sides, Myanmar decided on a BOT agreement with a Chinese contractor. Currently, there are problems with the Chinese contractor as it is not able to complete the project as per the agreed upon time. Photo 3.12 shows the condition of the road linking Eindu and Thaton as of September 2019.

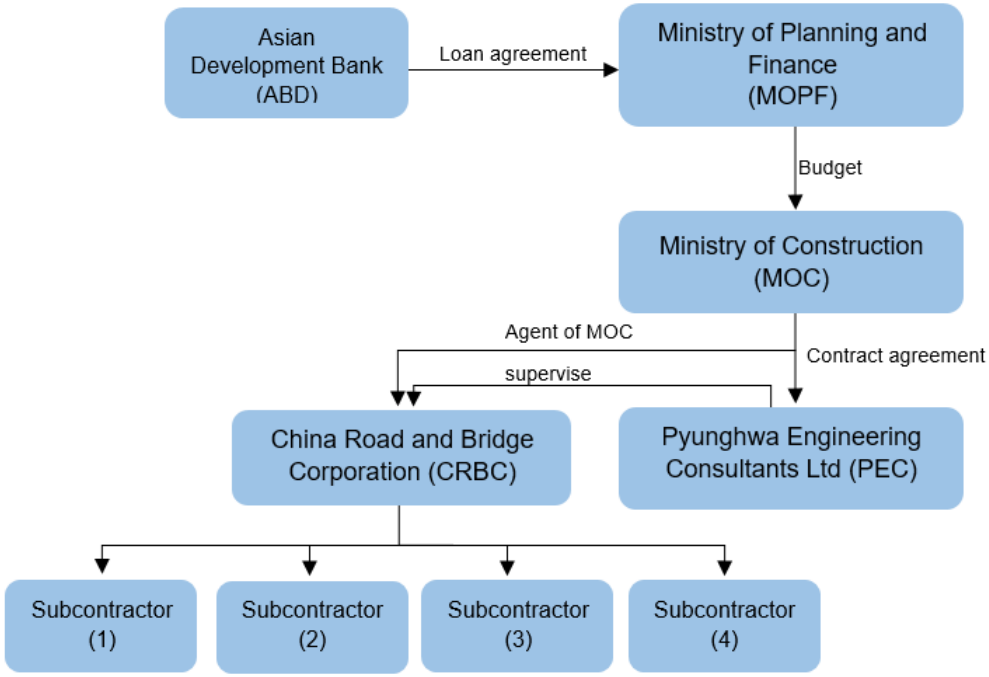
Photo 3.12. Road Conditions in Thaton–Eindu

Source: Banomyong (2020), based on Department of Highway (DoH), Thailand.

Eindu–Kawkareik

ADB has approved US$ 100 million together with US$ 20 million from the ASEAN Infrastructure Fund (AIF) and US$ 1.8 million from the Myanmar government to improve a 66.4 km road segment connecting Eindu and Kawkareik in Kayin state, the missing link in the GMS–EWEC. The contractual arrangement for project implementation is illustrated in Figure 3.11.

Figure 3.11. Contractual Structure of Eindu–Kawkareik Road Project



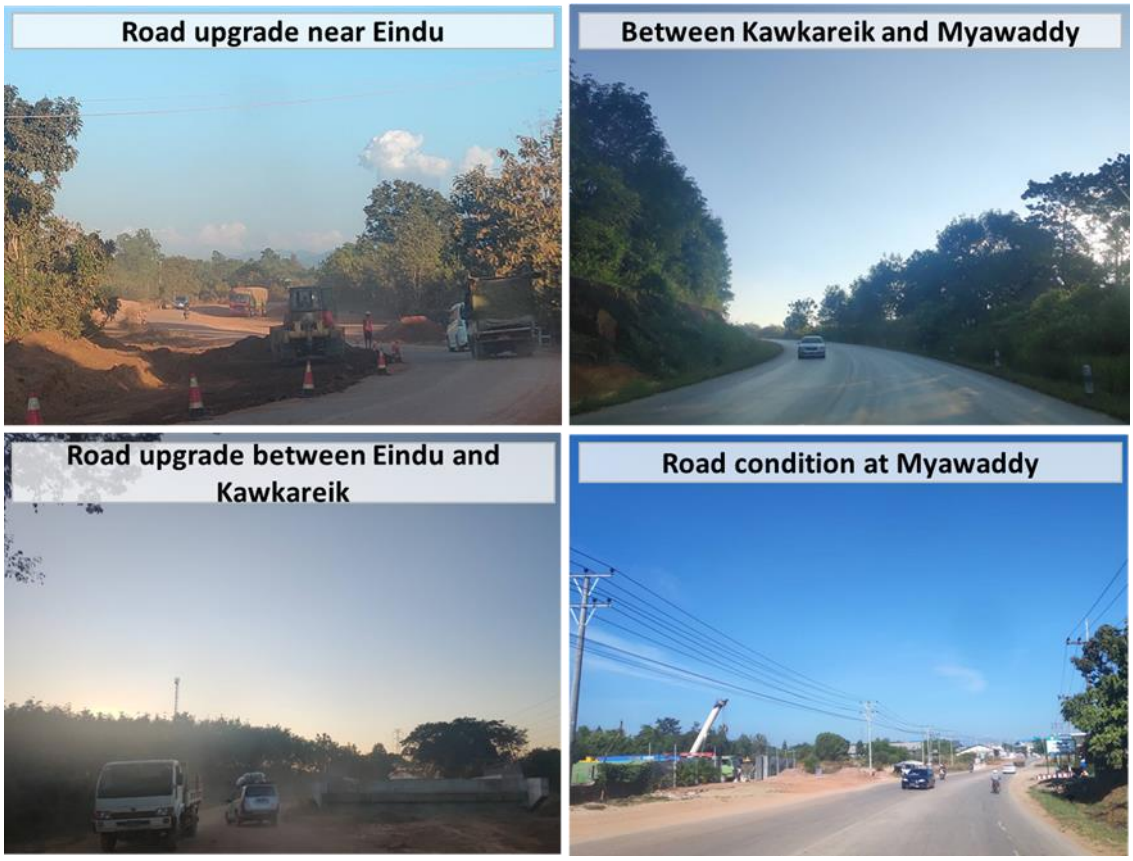
Source: MSR (2020), based on ADB (2018e).

Pyunghwa Engineering Consultants (PEC) is the representative of Myanmar to supervise the project, and the construction itself is done by China Road and Bridge Corporation (CRBC) as the main contractor. Initially, the upgrade was to be completed by 2019. However, as of September 2019, the overall progress was 57.4% according to ADB[18]. The main delay is due to the non-compliance of contractors on environmental issues.

Kawkareik–Myawaddy

The Kawkareik–Myawaddy road, for which the upgrading was completed in 2015 with help from Thailand, is considered one of the highest quality highway roads in Myanmar (Photo 3.13).

Photo 3.13. Road Conditions in Hpa-An–Myawaddy



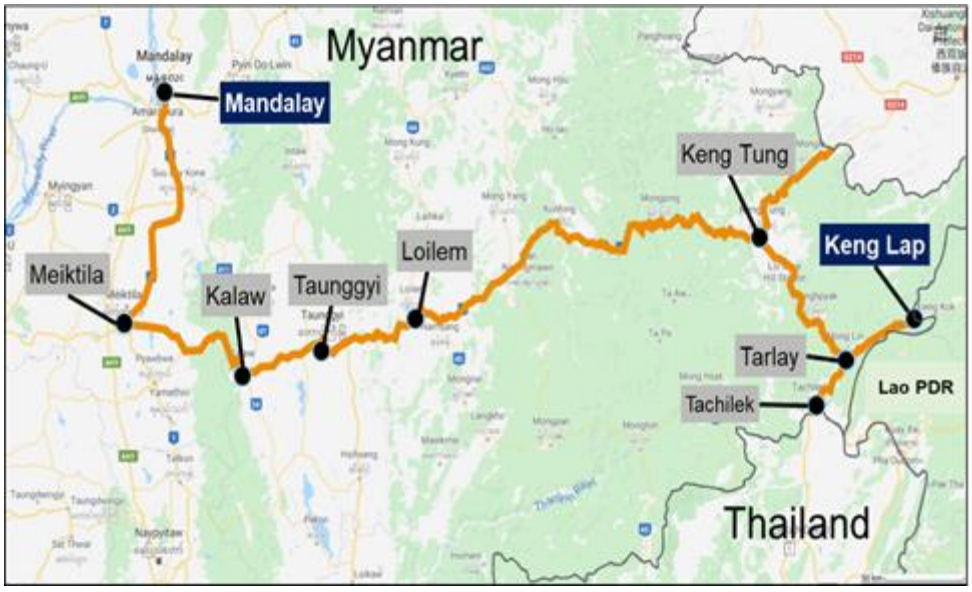
Source: MSR (2020).

[18] Refer to the ADB website titled 'Myanmar: Greater Mekong Subregion East–West Economic Corridor Eindu to Kawkareik Road Improvement Project' (https://www.adb.org/projects/46422-003/main#project-pds), accessed on 22 May 2020.

3.2.4. Mandalay–Keng Lap: Northern route of the eastward extension

According to Google Maps, the Mandalay–Keng Lap route, via Taunggyi, Loilem, Keng Tung, and Tarlay, is 935 km long and takes around 21 hours and 24 minutes. The road can be divided into three sections, namely (1) Mandalay–Meiktila–Taunggyi, (2) Taunggyi–Loilem–Keng Tung, and (3) Keng Tung–Tarlay–Keng Lap (Figure 3.12). The Mandalay–Meiktila section overlaps with AH-1 as well as National Highway No. 1 (NH-1), while the Meiktila–Taunggyi section serves as AH-2, and the Taunggyi–Tachilek route serves as AH-2 as well as NH-4. There is no GMS economic corridor designated on this route. Furthermore, the border section between Tarlay and Keng Lap has not been a part of any international initiatives, including the Asian Highway, the GMS economic corridor, or the ASEAN Highway Network, despite the establishment of physical connectivity by the completion of the Myanmar–Lao PDR Friendship Bridge in 2015.

Figure 3.12. Northern Route of the Eastward Extensions in Myanmar



Source: Drawn by MSR based on ©Google Map 2020.

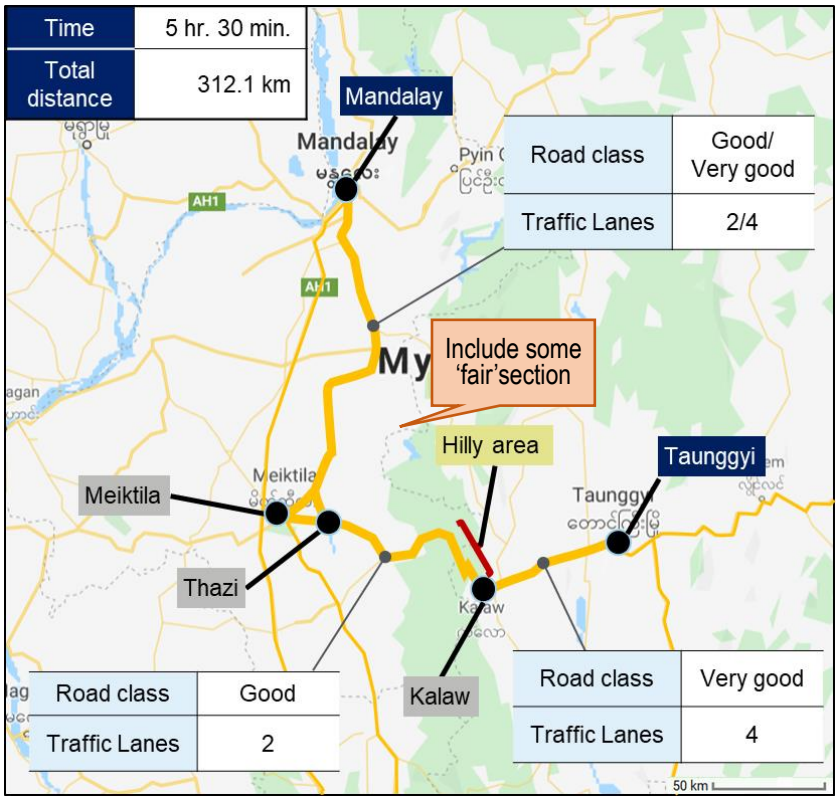
(1) Mandalay–Taunggyi

There are two routes from Mandalay to Meiktila. The first is through the Yangon–Mandalay Expressway, and the second is through NH-1, which is also designated as AH-1. Considering the

actual utilisation of logistic companies, the MSR decided to assess the second route. Most of the route is in good condition with a distance of 336.8 km, which took 5 hours and 30 minutes.[19]

The Mandalay–Meiktila section is 48 feet wide and is asphalt with a 'good' road condition. The Meiktila–Kalaw section is wide enough for two cars going in opposite directions to pass at the same time and is in good condition. The hilly section starts from Yin Mar Bin to Kalaw, which is an uphill climb with curves along the road, and there are many sections under repair or upgrading work (Figure 3.13 and Photo 3.14). The current status of the road condition of some parts between Yin Mar Bin and Kalaw will be at most 'fair' until the repair works are completed. The Kalaw–Taunggyi section of the highway is in very good condition and is a 48 feet wide four-lane asphalt road. It has been recently upgraded by the Highland Road Construction company under the BOT system.

Figure 3.13. Mandalay–Taunggyi section



Source: Drawn by MSR based on own assessment and ©Google Map 2020.

[19] The route survey was conducted in December 2019.

Over 190 out of 200 bridges along the Meiktila–Kalaw road were built by 2019, and the Highland Road Construction Company is to complete the remaining bridges in the open season at the beginning of 2020, according to a construction director of the Highland Road Construction Co., Ltd. The company was granted to build the Meiktila–Kalaw–Taunggyi road under a 40-year agreement through a BOT system, and the opening ceremony of the Kalaw–Taunggyi road was held on 1 May 2019. A 45 mile (72.4km) Kalaw–Taunggyi section is complete, and a 17 mile (27.3 km) Nantpantat–Kalaw section is yet to be built.[20] Only six out of 200 bridges are left to be built along the road, and the longest bridge that is left to be built is a 40-meter long bridge near Makway village adjacent to Nanphantat along the Kalaw uphill road. The cost of a mile-long road is usually over MK1.7 billion, and as the Nantphantat–Kalaw section has many bends, it could cost more than MK2 billion per mile (Eleven, 2019).

Photo 3.14. Road Conditions in Mandalay–Taunggyi

Source: MSR (2020), in December 2019.

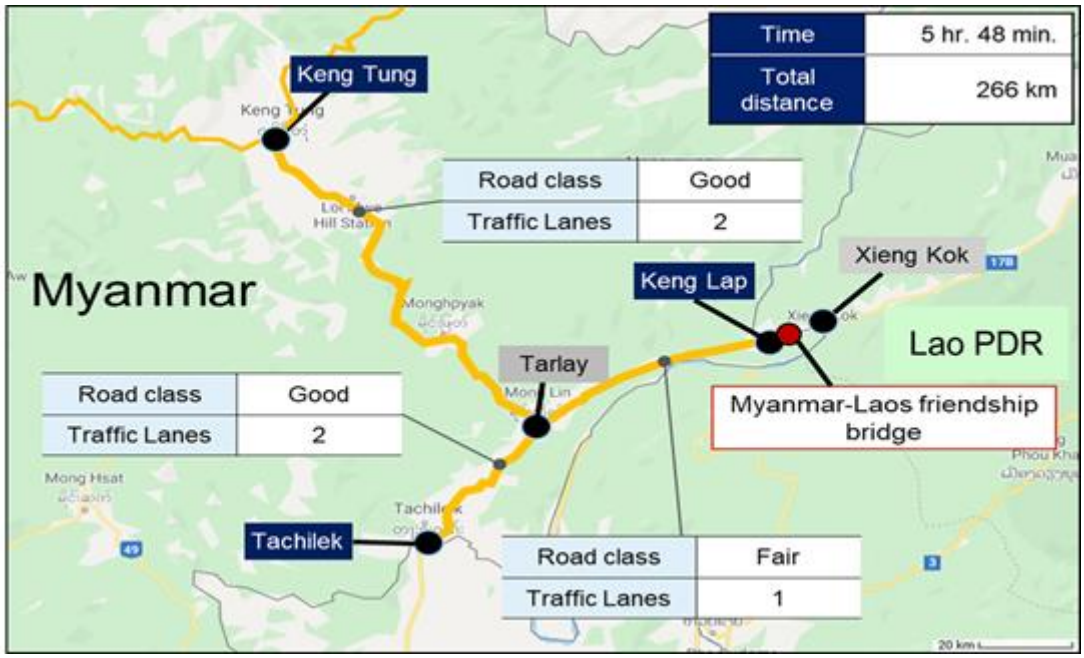
[20] Nantpantat is a village near Shan Yoma Elephant Camp on the Meiktila–Taunggyi road.

(2) Taunggyi–Keng Tung

There are some restricted areas in Shan State where foreigners are not allowed to enter. Generally, due to the existence of several ethnic armed forces, foreigners and tourists travelling in Shan State need permission to visit rural and remote areas.[21] Because of this restriction, the Myanmar Study Team for this TLH study could not conduct a route survey on the Taunggyi–Keng Tung segments of the route.

According to a Keng Tung border trade official, the road condition between Taunggyi and Keng Tung is similar to the section between Keng Tung and Tachilek. The road from Taunggyi to Keng Tung is 48 feet wide with two lanes of asphalt road and has many turns and some narrow curves. The Tachilek–Keng Tung route takes about 13 hours by car and it is 488 km long (Figure 3.14).

Figure 3.14. Taunggyi–Keng Tung Section



Source: Drawn by MSR based on ©Google Map 2020.

[21] According to the website of Ministry of Labour, Immigration and Population (http://www.mip.gov.mm/restricted-areas-for-foreigners-tourist-travelling-in-the-country/), the restricted areas for foreigners in Shan State include 24 townships namely Yatsauk, Loilin, Panglong, Namhsam, Kholan, Kunhing, Karli, Lechar, Linkhe, Mone, Lashio, Theinni, Tantyan, Kunlon, Mineye, Kyaukme, Hsipaw, Naung Hkio, Namtu, Momeik, Mabane, Minesat, Mine Tung, and Makman. Amongst these, Loilin (Loilem), Namhsam (Namsan), Kholam (Kho Lam), Kunhinh, and Karli (Kar Li) are townships along NH-4, which we consider as a potential route for the eastward extension of the TLH. Township names in parentheses are the spellings used in Google Maps.

According to officials from the Ministry of Construction, the main bottleneck of that route is the Wa Ta Lone hill, a rocky mountain near Loilem. Also, there are sand hills in the eastern part of Keng Tung, which make the existing road impossible to expand because they tend to collapse whenever it is done. The Government of Myanmar is now trying to conduct a feasibility study to receive loans from ADB to upgrade the current road.

The Takaw Bridge, which crosses Thanlyin River, is situated on NH-4 (AH-2), the only route that connects the southern part of the Shan State to the eastern part (Photo 3.14). Takaw Bridge is closed during the night time, from 6 pm to 6 am, because of security concerns. The limited opening hours of the bridge are inconvenient for long-haul transportation. In addition, the bridge is heavily guarded by the Myanmar military for security concerns. There is no official document that shows the night-time closure of Takaw Bridge. The bridge was constructed in 1973, and the maximum weight that is allowed for trucks to cross is 24 tons. The Department of Bridges has already started to build a Nang Seng–Takaw bridge at a different location from the old Takaw bridge to cross the Thanlyin River. It is expected that the bridge construction will be completed by the year 2022.

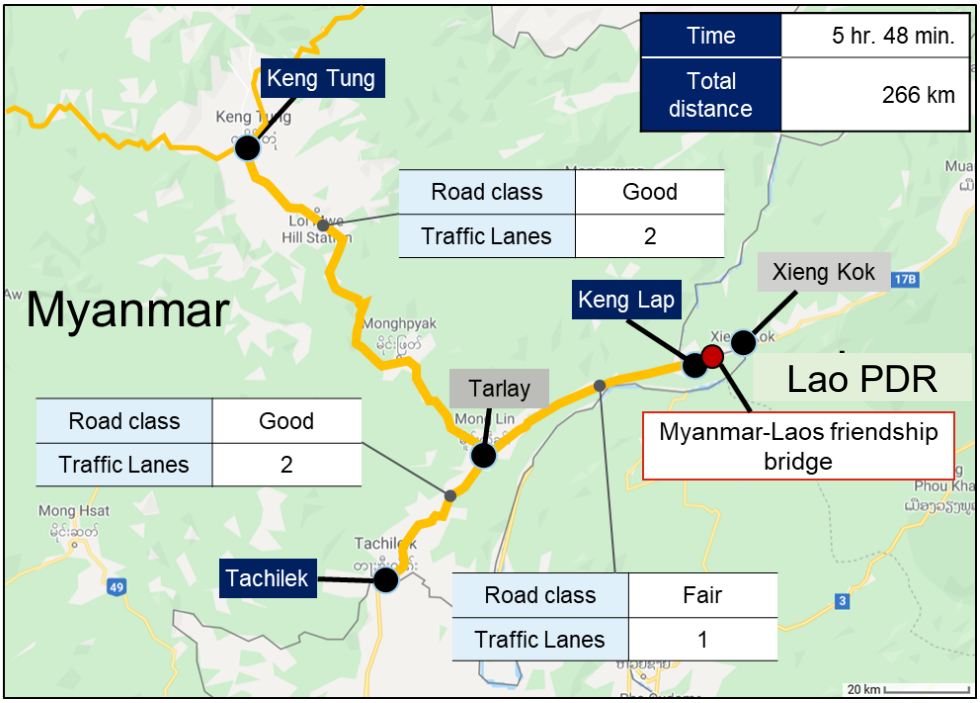
Photo 3.15. Takaw Bridge across Thanlyin River

Source: MSR (2020), originally taken by Fatima Martin.

(3) Keng Tung–Keng Lap

The Keng Tung–Keng Lap section can be divided into two. First, the Keng Tung–Tarlay section is on NH-4 and designated as a part of AH-2. The 111.0 km long segment is a two-lane, asphalt paved road, and the condition is 'good'. Both trucks and passenger cars going in opposite directions can easily pass each other at the same time. Second, the Tarlay–Keng Lap section is labelled as National Highway No. 29 (NH-29) and attracted no international initiatives, such as the Asian Highway, GMS economic corridors, or the ASEAN Highway Network, until the section was listed as one of 19 initial pipeline infrastructure projects under MPAC 2025 in November 2019 (World Bank et al. 2019a and b). The Tarlay–Keng Lap section is a 56.2 km long single-lane road, and the road condition is largely 'fair' with some narrow or damaged segments, which can be assessed as 'poor'.

Figure 3.15. Keng Tung–Keng Lap Section



Source: Drawn by MSR based on own assessment and ©Google Map 2020.

The Keng Tung–Tarlay section is a wide two-lane road with a 'good' surface condition, allowing vehicles, including trucks, to pass by each other. Even though the location is in a mountainous area, the road is smooth with only small curves. It is a comfortable road to drive, taking around three hours by car (Photo 3.16).

Photo 3.16. Road Conditions in Keng Tung–Tarlay

Source: MSR (2020). The distance is measured from Tachileik.

The Tarlay–Keng Lap section is largely in a fair condition with narrow asphalt coverage (Photo 3.17). There are some small curves along the road. Trucks and passenger cars may find it a little difficult to pass each other at the same time. Some small parts are being upgraded by the Ministry of Construction. A widening of the road is desirable, but there are villages along the road where houses are built close to the road, which hinder the road upgrade.

Photo 3.17. Road Conditions in Tarlay–Keng Lap

Source: MSR (2020).

The Myanmar–Lao PDR Friendship Bridge links Keng Lap in the Tachileik district of Shan State of Myanmar and Xieng Kok in the Luang Namtha Province of the Lao PDR. The 691.6-meter-long bridge, which runs across the Mekong River, was inaugurated on 9 May 2015 (Mizzima, 2015). The construction cost of US$26 million was borne equally by Myanmar and the Lao PDR. The bridge is capable of withstanding 75 tons of load per vehicle. Currently, local people who are

from Xieng Kok and Keng Lap are allowed to cross the bridge. The road condition between the two border checkpoints in Keng Lap in Maymar and Xieng Kok in Lao PDR is 'very good', including the approach roads and the bridge.

According to information from the Department of Highways, Ministry of Construction of Myanmar, the Myanmar–Lao PDR Friendship Bridge was first conceptualised for boosting bilateral trade, and construction was started in 2013. At the initial stage, both governments agreed to build the bridge based on the water border line, and each country took responsibility to construct their own side. But, actually, the use of this bridge has long been limited to crossings by local people, instead of full-scale vehicle traffic for bilateral trade. It is understood that there are disagreements over the border points. According to officials of the provincial government of Luang Namtha, Lao PDR, however, the Lao PDR views the lack of bilateral cross-border transport agreement to be the root cause of the underutilisation of the bridge, without pointing out the disagreement on the border point.[22] From the viewpoint of establishing this route as a part of the eastward extension of the TLH, this problem is of critical importance and can be resolved through bilateral talks.

As already discussed in Chapter 2, Myanmar's exports through the Myanmar–Lao PDR Friendship Bridge started in October 2019 (Photo 3.18). The border station started issuing licenses and permits for Myanmar exporters to enable them to trade with not only Lao PDR but mainly with China. According to a Keng Lap border official, exports from Myanmar started in FY2018, but there have been no imports from the Lao PDR to date. Currently, Myanmar exporters are waived to pay export taxes to the internal revenue department. Export items have been limited to rice, maize, livestock (goats), and rubber. Rice is the main export item from Myanmar. According to the Ministry of Commerce, the trade value was US$18,000 in FY2018 and US$81,000 in September–November 2019.

[22] Based on an interview with officials of the Luang Namtha Province of Lao PDR by the Myanmar Study Team in January 2020.

Photo 3.18. Myanmar–Lao PDR Friendship Bridge: Myanmar side

Source: MSR (2020). Photos were taken on 18 December 2019.

According to a Keng Lap border official, the export quota of rice from Myanmar to China, which goes through Muse, reached its limit in 2019.[23] As a result, the Keng Lap border trade station became the main alternative transit gate for rice from Myanmar to China. On the other side of the Myanmar–Lao PDR Friendship Bridge, Chinese trucks arranged by Chinese importers are waiting to pick up commodities directly from Myanmar trucks. The official also added that starting from 2019, Myanmar traders are exporting rice directly to China without using the bypass route via the Lao PDR. However, they may again use the bypass route in the latter half of 2020 when they have used up all the export quota to China. There have been no customs officials assigned on the Lao PDR side of the Friendship Bridge, because the Lao PDR does not recognise that the border gate is operational due to the lack of a bilateral cross-border transport agreement.[24]

[23] Based on an interview by MSR in December 2019.
[24] Based on an interview with officials from the Luang Namtha Province of the Lao PDR by the Myanmar Study Team in January 2020.

3.3. Thailand[25]

After completion of the four-lane highway linking Tak and Mae Sot in 2019, this is one of the most beautiful roads in Thailand. The budget for building the road is B4 billion. Thailand has been developing not only domestic infrastructure but also infrastructure in neighbouring countries, such as new highways linking Myawaddy and Kawkareik in Myanmar. This new highway cuts the transit time drastically to Mawlamyine and enables faster access to Yangon. Photo 3.19 shows the new four-lane highway linking Tak to Mae Sot. The quality of the road is good, thus supporting faster transit times for trucks going to and from the Thai–Myanmar border.

Photo 3.19. Road Condition in Mae Sot–Tak

Source: Banomyong (2020), based on Department of Highway, Thailand (2019).

The Thai government has approved a concessional loan of B777 million to Myanmar for infrastructure development in Myawaddy (Bangkok Post, 2019a). The conditions include a low-interest rate (1.5%), long-term contract (30 years), and a grace period of 10 years. This is important for the TLH as Myawaddy is a key connecting node with Thailand. This loan is based on a proposal by the NEDA to provide financial assistance to Myanmar to fund the third phase of the GMS development project for Myawaddy town.

The loan conditions require goods and services to be from Thailand for at least 50% of the value of the contract. Constructors and project advisers must hold Thai nationality, and Thai laws will be enforced in the loan contract. Myawadee town plays an important role in the economic development of Myanmar and Thailand because it is a major border trading area between

[25] This subsection is based on Banomyong (2020).

Myanmar and Thailand through the Mae Sot district of Tak. The border town serves as a transport route for goods and people from Thailand to other important towns in Myanmar.

The Thai government has already spent B1.1 billion for the construction of the Second Thai–Myanmar Friendship Bridge over the Moei River to relieve traffic congestion at the Mae Sot checkpoint and to resolve the load-bearing constraint of the old Friendship Bridge. The new bridge, which has already opened, is part of a larger plan to connect Mae Sot and Yangon, Myanmar, and improve access to the Indian Ocean, according to the Thai Minister of Transport (Bangkok Post, 2019b).

3.4. Lao PDR

Road transportation is a highly important mode of transportation in the Lao PDR as a landlocked country. Road transportation covers more than 80% of the total volume of transportation, followed by river transport and air transport, and, therefore, the development of road infrastructure has been a priority for the country. The total length of road has been extended 27.1% from 47,492 km in 2010 to 60,340 km in 2018 (Table 3.3). Although all types of road have increased, the increasing rates of broadly defined paved road, namely concrete, asphalt paved, and paved, are higher than those of gravelled and earthen roads. As a result, the share of broadly defined paved road increased from 14.8% in 2010 to 19.4% in 2018, while the share of earthen road decreased by 6.1 percentage points.

The northern route of the eastward extension passes through the Lao PDR, from Xieng Kok at an end of the Myanmar–Lao PDR Friendship Bridge inaugurated in 2015, Muang Sing, Luang Namtha, Nateuy, Oudomxay, Pak Nam Noy, Muang Khua, and to Pang Hoc at the border with Viet Nam (Figure 3.16).

As reported above, the condition of the road between the two border checkpoints in Keng Lap in Maymar and Xieng Kok in Lao PDR is 'very good', including the approach roads and the bridge (Photo 3.21).

Table 3.3. Road Development in the Lao PDR

	2010		2018		Change in length	Contribution rate	Change in share
	km	share	km	share			
Concrete	83	0.2%	552	0.9%	565.1%	3.7%	0.7%
Asphalt paved	614	1.3%	1,203	2.0%	95.9%	4.6%	0.7%
Paved	6,324	13.3%	9,973	16.5%	57.7%	28.4%	3.2%
Gravelled	17,556	37.0%	23,179	38.4%	32.0%	43.8%	1.4%
Earthen	22,915	48.3%	25,433	42.1%	11.0%	19.6%	-6.1%
Total	47,492	100.0%	60,340	100.0%	27.1%	100.0%	0.0%

Source: Ministry of Public Works and Transportation.

Figure 3.16. Northern Route of the Eastward Extensions in the Lao PDR

Source: Drawn by So Umezaki, based on Google Map ©2020.

Photo 3.20. Lao PDR–Myanmar Friendship Bridge


Source: So Umezaki on 16 January 2020.

The border checkpoint at the foot of the Lao PDR–Myanmar Friendship Bridge is about 14 km west of the centre of Xieng Kok. This 14 km road segment was developed together with the Friendship Bridge, and the condition is 'good'. Heading from the border to Xieng Kok, the road runs to the left side of the Mekong River, which draws the national border between Lao PDR and Myanmar (Photo 3.21).

Photo 3.21. Road Conditions at the Border–Xieng Kok and a Cargo Ship on the Mekong River


Source: So Umezaki on 16 January 2020.

About 70 km long, the Xieng Kok–Muang Sing road is mostly unpaved and in a very poor condition. According to officials of the Ministry of Public Works and Transportation, the earthen road was developed and partly paved with assistance from the World Bank about 20 years ago. The road has not been maintained adequately due to budget constraints and has been badly

damaged until now. A large part of the Xieng Kok–Muang Sing section runs through agricultural landscape, most of which is currently used for contract farming for growing bananas, rubber, sugarcane, bloom grass, and so on. Many villagers in Luang Namtha have been engaged in contract farming, exporting their products to China via local and Chinese traders. 'Constraints faced by the farmers in this area include the high costs of cross-border trading; fluctuating prices; limited access to technology, market information, and credit; and weak negotiating positions with traders on process' (Manorom et al. 2011: 10). Due to the inadequate capability of domestic logistics services providers, a number of Chinese trucks arranged by Chinese traders come to this area, based on the bilateral cross-border transport agreement, to pick up products along the road and bring them back to China (Photo 3.22).

The road condition of the Muang Sing–Luang Namtha section is largely 'fair' or 'good', and most of it is two-lane paved road with several damaged segments. The inter-city part of the remaining sections from Luang Namtha to Pang Hok, via Nateuy, Oudomxay, Pak Nam Noy, and Muang Khua, is also two-lane paved road, and the condition is 'good'. In the downtowns of the major cities, such as Luiang Namtha and Oudomxay, there are four-lane road sections that are in 'good' condition[26] (Photo 3.23 and 3.24).

Photo 3.22. Road Conditions in Xieng Kok–Luang Namtha

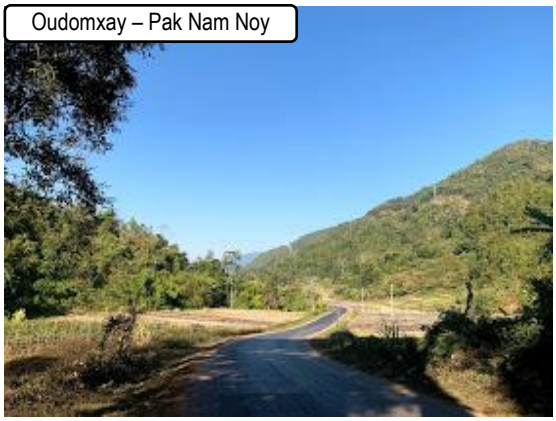
[26] The MSR made this assessment based on its own route surveys on the entire route, between Pang Hok and Oudomxay in December 2019 and between Oudomxay to Xieng Kok in January 2020.


Source: So Umezaki on 16 January 2020.

Photo 3.23. Road Conditions in Luang Namtha–Oudomxay

Source: So Umezaki on 15 January 2020.

Photo 3.24. Road Conditions in Oudomxay–Pang Hok



Source: So Umezaki on 11 December 2019.

3.5. Viet Nam[27]

(1) Road Quality

The Hai Phong–Tay Trang route runs along AH-14 (Hai Phong–Ha Noi) and AH-13 (Ha Noi–Tay Trang) with five main sections, including Hai Phong–Ha Noi (87.7 km), Ha Noi–Hoa Binh (66.0 km), Hoa Binh–Son La (237.2 km), Son La–Dien Bien (154.8 km), and Dien Bien–Tay Trang (33.5 km). In general, the quality of roads from Hai Phong to Tay Trang border check point is good except for a few sections that need to be improved. Based on the Asian Highway Standards, all the road sections along Hai Phong–Tay Trang are of Class III paved with asphalt or concrete, of which 93.5% is in 'fair' surface condition and 6.5% in 'good' surface condition; and 80% are two-lane roads while the rest are four-lane highways.

[27] This subsection is based on the relevant parts of Nguyen et al. (2020), which provides further details.

The Hai Phong–Ha Noi section is relatively well developed and in good condition, in the sense that the entire section is flat terrain and a four-lane highway or expressway. Yet due to geographical features, there are several bottlenecks along this route, such as NH-6 from Long Luong in Son La to Tuan Giao in Dien Bien, in particular the Pha Din Mountainous Pass (50 km long); and NH-279 from Dien Bien Phu to the Tay Trang border gate, in particular the Na Loi Mountainous Pass (7 km long) and the Tay Trang Mountainous Pass.

The worst route is NH-279 from Dien Bien Phu to the Tay Trang border gate (33 km long) and linking to NH-2E in the Lao PDR. This section is 100% mountainous terrain with narrow lanes and carriageways, tight horizontal curves, and no sidewalk. These specifications are in fact below the required standards of Class III. Despite being maintained and resurfaced every year, the road surface remains in poor condition and is often damaged due to the high traffic volume of overloaded trucks passing by. The road quality of the Dien Bien–Tay Trang route is even worse than the adjacent NH-2E in the Lao PDR, which was repaired and upgraded by the Vietnamese government's fund. The roads from Dien Bien Phu to Tay Trang are not only curved, steep, and dusty with a lot of potholes but also appear to be directly exposed to much damage.

(2) Quality of infrastructure

According to officials from the Directorate for Roads of Vietnam, traffic volume along the Ha Noi–Tay Trang route has been growing recently since China closed some border crossing points with Viet Nam in the northern provinces in 2019. In the fourth quarter of 2019, at the Mai Chau station in Son La on NH-6, the average daily number of vehicles was estimated at 2,024.[28] Despite the poor road quality of NH-279, in Muong Ang district, this figure reached 1,369 vehicles, of which more than 30% were heavy trucks.

Based on the Asian Highway Database, the road surface of the Hai Phong to Chui Bridge (Ha Noi) is good, as for 37% of the route the road surface is in good condition and the rest in a fair condition. At the same time, the surface of all the roads along Ha Noi to the Tay Trang border check point section is classified as being in 'fair' condition; however, the road condition between Dien Bien Phu and Tay Trang border check point is in fact 'bad'. The road has been severely damaged by the high frequency of overloaded trucks carrying stone and cement from quarries and cement plants; stone mining activities at the roadside of the Tay Trang Mountainous Pass;

[28] Vehicles with four or more wheels, excluding motorcycles and bicycles.

and weather conditions, especially during the rainy season. The local authority seems to poorly manage these activities and road quality (Photo 3.23).

Photo 3.25. Road Conditions in Tay Trang–Dien Bien

Source: So Umezaki on 9 and 11 December 2019.

The Dien Bien Phu–Tay Trang section is also vulnerable to weather conditions. From June to the end of September, drivers face a high risk of landslides from the long-lasting and erratic rainy season. During the dry season, the roads are dusty, and during the rainy season they are slippery. Sometimes it takes 3–4 hours for a trailer to get to the Tay Trang border gate from Dien Bien Phu. If a driver is either not good enough or not familiar with the route, he cannot pass bad curves and may cause congestion. In winter, from September to December, fog also usually hampers drivers' vision on the road.

(3) Border facilities at border check points

The working times for the procedures for trade, transited vehicles, and immigration vary across border check points and depend on the agreement between the governments of Viet Nam and Lao PDR. For example, at the Lao Bao border gate, the working hours are from 7:00 am to 10:00 pm, while the Tay Trang border check point opens at 7:00 am and closes at 7:30 pm, but there are staff working overnight in case of emergency, particularly for medical emergencies as patients from the Lao PDR are sometimes sent to Viet Nam's hospitals for treatment.

The number of officials working at the Tay Trang Customs Sub-Department is 22, including tenure and contract staffs. Since the Tay Trang Customs Sub-Department is in charge of three border gates, namely the Tay Trang international border gate, Huoi Puoc national border gate, and A Pa Chai local border gate, these staff also have responsibilities for the Huoi Puoc and A Pa Chai border check points.

The procedures for cross-border trade on customs, inspection, supervision, and control procedures are stipulated in Decree No. 59/2018/ND-CP dated on 20 April 2018 of the Government.[29] In addition, the procedures for customs declaration are specified in Article 16 of Circular No.38/2015/TT-BTC by the Ministry of Finance, which was amended in Circular No.39/2018/TT-BTC dated on 20 April 2018. Procedures for declaration of transited vehicles are specified in Article 74 and Article 75 of Decree No.08/2015/ND-CP and amended in Article 74 of Decree No. 59/2018/ND-CP dated on 20 April 2018. In terms of immigration activities, since 1 February 2019, the Tay Trang international border gate has become a checkpoint for foreigners holding e-visas upon entry or exit under Decree No.17/2019/ND-CP. The Tay Trang Customs Sub-Department and Border Safeguard Station are responsible for controlling and supervising goods and vehicles through the border.

[29] Amended Decree No.08/2015/ND-CP dated on 21 January 2018 of the Government.

The average time for cargo clearance and transited vehicles or passengers ranges from around 10 to 30 minutes.[30] The Tay Trang Customs Sub-Department has applied e-customs (VNACCS) since 2014.

(4) Future plans for physical infrastructure development

AH-13: NH-279 was decided to be renovated and upgraded from Class V (mountainous) to Class IV (mountainous) by the Ministry of Transport in 2015 with a total investment of D1,054 billion. Capital allocation for site clearance was completed, but capital allocation for project implementation has been delayed. This project has been postponed since 2015 in accordance with Resolution No. 11/NQ-CP dated on 24 February 2011 by the Government.

The mid-term public investment plan 2021–2025: The Ministry of Transport has a plan regarding the road rehabilitation and upgrading of the Dien Bien–Tay Trang section, including bypass roads in both Dien Bien Phu and the Muong Ang district, according to Decision No.1943/QD-BGTVT dated on 14 October 2019 by the Ministry of Transport. In addition, the Dien Bien Phu–Tay Trang section is annually budgeted for the regular maintenance and repair of heavily damaged roads to ensure safe and smooth transportation.

NH-6: The road linking Hoa Binh–Son La–Dien Bien is expected to be upgraded into a highway and put into Viet Nam's expressway network development plan for 2020 and vision towards 2030, approved by the Prime Minister in Decision No. 326/QD-TTg dated on 1 March 2016. Moreover, there is a proposal to rehabilitate and upgrade the AH-13 component in Viet Nam via the left bank of the Da River.

AH-14: The Ministry of Transport has plans to upgrade some sections along the AH-14 to meet the requirements of the AH Standard Class III, especially in developing a new NH-5 between Hai Phong and Ha Noi.

The financial source for the repairing of the road surface and drainage is the Road Maintenance Fund. Yet the plans for improvement and maintenance of road quality in Viet Nam face difficulties related to regulations on the Road Maintenance Fund. This fund is used only for road maintenance rather than road extension,[31] which hampers the possibility of upgrading the road

[30] The clearance time depends on the results of the certificate of origin classification and the duration of the specialised inspection, which sometimes takes about 30–50 hours.

[31] For example, it cannot be used to expand the width of a lane from 3.5 m to 4 m.

quality according to AH Standards. Additionally, the Central Road Maintenance Fund has not enough capital to run the management and maintenance of roads.

Tay Trang–Pang Hok border economic zone: The Tay Trang Customs Sub-Department plans to develop a border economic zone between Tay Trang and the Pang Hok border check point.

3.6. Cambodia

The southern route of eastward extension of the TLH is assumed to enter Cambodia at the Poipet border check point from Aranyaprathet in Thailand, and runs along National Road No. 5 (NR-5) to Phnom Penh, changes to National Road No. 1 (NR-1), crosses the Tsubasa Bridge over the Mekong River in Neak Loung, and exits at the Bavet border check point to Moc Bai in Viet Nam. In addition, the route is expected to extend from Phnom Penh to Sihanoukville, the biggest international port in Cambodia. The entire route overlaps with sub-corridor No.1 of the GMS Southern Economic Corridor (SEC-1).

According to the recent comprehensive assessment by ADB, Poipet–Sisophon (47.0 km; Class II), Preach Kdam–Phnom Penh (30.0 km; Class I), the Phnom Penh–Neak Loung (60.0 km; Class II), Neak Loung–Svay Rieng (65.0 km; Class III), and Svay Rieng–Bavet (42.0 km; Class III) sections and the branch route from Phnom Penh to Sihanoukville are all in 'good' condition (ADB 2018b; 2018c). Although the remaining sections between Sisophong and Preach Kdam (330.0 km; Class III) is assessed as being in 'fair' condition, upgrading works, including the construction of new road sections to bypass the downtowns of cities along the route, have been ongoing in these sections.

3.7. Conclusions

Most of the original alignment of the TLH has been recently upgraded or has been undergoing upgrading, improvement, or repair work. Recently completed projects include the bypass road connecting Myawaddy and Kawkaleik (Thailand) and the second friendship bridge connecting Myawaddy and Mae Sot. The ongoing projects include the road upgrading between Kalewa and Yargyi (India), the road upgrading between Yargyi and Monywa (BOT), the new Bago bridge (Japan), and the construction of an arterial road connecting Bago and Kyaikto (ADB). Assuming the timely completion of the ongoing projects, the remaining bottlenecks are the replacement

of 69 bridges along the Tamu–Kyigone–Kalewa road, which is expected to resume as the legal case at the Manipur High Court was concluded in favour of the Government of India in October 2019, and the upgrading of the Thaton–Eindu road, which has been stuck under a BOT arrangement with a Chinese company.

The northern extension route still has a lot of bottlenecks, some of which are beyond the scope of infrastructure development. Although the Myanmar–Lao PDR Friendship Bridge already opened in 2015, its utilisation is still very limited, mainly because of the lack of a bilateral agreement for cross-border transport. The most significant bottlenecks in Myanmar are the restrictions on foreigners for entering some parts of Shan State and the night-time closure of the Thanlyin Bridge in Takaw for security reasons. The road connecting Tarlay and Keng Lap is narrow, and the surface has been damaged. In the Lao PDR, the road section between Xieng Kok and Muang Sing is still unpaved. Although most of the road infrastructure in the Lao PDR has not been severely damaged, some sections may require minor repair works or expansion to accommodate large trucks. The Lao PDR ceased issuing on-arrival visas at the Pang Hok border check point, facing Tay Trang in Viet Nam, at the end of 2019. Although the mountainous section between Tay Trang and Na Thin in Viet Nam was heavily damaged, repair and expansion work have been in progress.

In comparison, the southern extension route has been better developed as parts of the GMS economic corridors, including the already well-developed road networks in Thailand and the construction of Tsubasa Bridge over Mekong river in Neak Loung, Cambodia. At least in terms of physical infrastructure, the southern route for the eastward extension of the TLH will not require a large amount of additional investment, although the critical issue of institutional arrangement still remains.

Given the limited government revenue, Myanmar has a large dependence on foreign assistance in order to meet the vast demand for infrastructure investment in roads and other infrastructure. The role of the private sector, through BOT arrangements, has been significant for construction and maintenance. In addition, local townships along trunk roads, including the TLH, have been playing an important role for maintenance, using the funds collected as the wheel tax.

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Annex Table 3.1. Current Status of the TLH: Original Alignment

Country	Start	End	GMS	AH	NR	Distance	Condition	Remarks
Border I/M	Moreh	Tamu	-	AH-1	Border Belt	0.3	Bad	The Friendship Bridge is old and narrow.
Myanmar	Tamu	Kyigone	NSEC-6	AH-1	IMFH	121.5	Fair	**[India]** Bridge replacement project has been stalled.
Myanmar	Kyigone	Kalewa	NSEC-6	-	IMFH	27.9	Fair/Good	
Myanmar	Kalewa	Lah Poh	NSEC-6	-	IMFH, MKH	91.7	Poor	**[India]** Ongoing upgrading work to be completed by May 2021.
Myanmar	Lah Poh	Yargyi	NSEC-6	-	IMFH, MKH	28.9	Poor	
Myanmar	Yargyi	Monywa	NSEC-6	-	IMFH, MKH	64.4	Fair/Poor	Some sections are being upgraded or repaired by Monywa Group of Companies under BOT contract.
Myanmar	Monywa	Mandalay	NSEC-6	AH-1	NR-71, 7	130.0	Good	Upgrading work is ongoing by by Monywa District Rural Road Development Department.
Myanmar	Mandalay	Meiktila	NSEC-5	AH-1	YME	134.4	Good	Upgrading of Yangon-Mandalay Expressway is one of 19 initial pipeline of ASEAN insfastructure projects for MPAC 2025. Trucks need special permission to use YME.
Myanmar	Meiktila	Yamethin	NSEC-5	AH-1	YME	62.8	Good	
Myanmar	Yamethin	Nay Pyi Taw	NSEC-5	AH-1	YME	90.3	Good	
Myanmar	Nay Pyi Taw	Taunggoo	NSEC-5	AH-1	YME	87.9	Good/Fair	
Myanmar	Taunggoo	Bago	NSEC-5	AH-1	YME	172.8	Good	
Myanmar	Bago	Kyaikto	EWEC	AH-1	NR-8	72.7	Good	**[ADB]** New arterial highway to be developed by 2024. **[JICA]** New bridge (2.3km) over the Sittaung River will be constructed by 2026.
Myanmar	Kyaikto	Thaton	EWEC	AH-1	NR-8	67.3	Good	
Myanmar	Thaton	Eindu	EWEC	AH-1	NR-85	70.9	Fair	**[Myanmar]** BOT project has been stalled.
Myanmar	Eindu	Kawkareik	EWEC	AH-1	NR-85	67.0	Poor	**[ADB and AIF]** Upgrading work on 66.4km section to be completed by March 2020. **[JICA]** Gyaing Kawkareik Bridge (580m) to be completed by July 2021.
Myanmar	Kawkareik	Myawaddy	EWEC	AH-1	MKR	45.2	Good	**[Thailand]** A bypass road was constructed and opened in 2015.
Border M/T	Myawaddy	Mae Sot	EWEC	AH-1	Border Belt	2.5	Good	**[Thailand]** The 2nd Friendship Bridge was opened on 30 October 2019.
[Branch route]								
Myanmar	Bago	Yangon	EWEC, NSEC-5	AH-1	YME	97.6	Good	**[JICA]** A new road connecting Yangon (Thanlyin) and Bago will be built.
Myanmar	Yangon	Thilawa SEZ	NSEC-5	AH-1		27.8	Good	**[JICA]** New Bago Bridge is being developed to be opened in 2021.

Annex Table 3.2. Current Status of the TLH: Northern Route of Eastward Extension

Country	Start	End	GMS	AH	NR	Distance	Condition	Remarks
Myanmar	Meiktila	Thazi	-	AH-2	NH-4	19.7	Good	
Myanmar	Thazi	Payangazu	-	AH-2	NH-4	24.3	Good	
Myanmar	Payangazu	Yin Mar Bin	-	AH-2	NH-4	12.4	Good	
Myanmar	Yin Mar Bin	Kalaw	-	AH-2	NH-4	58.8	Fair/Poor	Repair and upgrade works ongoing.
Myanmar	Kalaw	Taunggyi	-	AH-2	NH-4	113.5	Good	
Myanmar	Taunggyi	Loilem	-	AH-2	NH-4	78.9	*unknown*	Unable to enter due to security concerns. The condition is "fair" accoring to officials.
Myanmar	Loilem	Ta Kaw	-	AH-2	NH-4	177.1	*unknown*	
Myanmar	Ta Kaw	Keng Tung	-	AH-2	NH-4	179.0	*unknown*	
Myanmar	Keng Tung	Tarlay	-	AH-2	NH-4	111.0	Good	
Myanmar	Tarlay	Keng Lap	-	-	NH-29	56.2	Fair/Poor	Some narrow sections and damaged surface.
Border M/L	Keng Lap	Border CP		-		1.6	Good	Friendship bridge opened in 2015, but the utilization is low due to lack of bilateral transport agreement.
Lao PDR	Border CP	Xieng Kok	-	-	-	14.0	Good	Upgraded with the Friendship Bridge.
Lao PDR	Xieng Kok	Muang Sing	-	-	NR-17B	70.3	Poor	Mostly unpaved.
Lao PDR	Muang Sing	Luang Namtha	-	-	NR-17A	57.8	Fair/Good	Some damaged segments.
Lao PDR	Luang Namtha	Nateuy	NSEC-1	AH-3	NR-3	36.4	Good	
Lao PDR	Nateuy	Oudomxay	NSEC-2	AH-12	NR-13N	78.3	Good	
Lao PDR	Oudomxay	Pak Nam Noy	-	AH-13	NR-2E	63.4	Good	
Lao PDR	Pak Nam Noy	Muang Khua	-	AH-13	NR-2E	37.8	Good	
Lao PDR	Muang Khua	Muang Mai	-	AH-13	NR-2E	35.9	Good	
Lao PDR	Muang Mai	Pang Hok	-	AH-13	NR-2E	25.7	Good	
Border L/V	Pang Hok	Tay Trang	-	AH-13	Border belt	5.4	Good	
Vietnam	Tay Trang	Na Thin	-	AH-13	QL-279	16.9	Bad	Repair and upgrading work in progress.
Vietnam	Na Thin	Dien Bien Phu	-	AH-13	QL-6	16.6	Fair	Some narrow sections.
Vietnam	Dien Bien Phu	Son La	-	AH-13	QL-6	154.8	Fair	
Vietnam	Son La	Hoa Binh	-	AH-13	QL-6	237.2	Fair	
Vietnam	Hoa Binh	Hanoi (Thanh Xuan)	-	AH-13	QL-6	66.0	Good	
Vietnam	Hanoi (Thanh Xuan)	Hanoi (Hoang Mai)	-	-	CT-20	5.2	Good	
Vietnam	Hanoi (Hoang Mai)	Hanoi (Thach Ban)	-	AH-1	CT-20	22.7	Good	
Vietnam	Hanoi (Thach Ban)	Hai Duong	NSEC-3	AH-14	QL-5B	43.0	Fair	
Vietnam	Hai Duong	Hai Phong	NSEC-3	AH-14	QL-5B	44.7	Good	
Vietnam	Hai Phong	Lack Huyen	-	-	DT-356	32.6	Good	

Annex Table 3.3. Current Status of the TLH: Southern Route of Eastward Extension

Country	Start	End	GMS	AH	NR	Distance	Condition	
Thailand	Mae Sot	Tak	EWEC	AH-1	NH-12	7.0	Good	
Thailand	Tak	Nakhon Sawan	NSEC-1	AH-1	NH-1	181.0	Good	
Thailand	Nakhon Sawan	Bangkok	NSEC-1	AH-1	NH-1A, 32	15.0	Good	
Thailand	Bangkok	Chachoengsao	SEC-1	AH-1	NH-7	84.6	Good	
Thailand	Chachoengsao	Sakao	SEC-1	AH-1	NH-304, 359, 33	120.0	Good	
Thailand	Sakao	Aranyaprathet	SEC-1	AH-1	NH-33	57.7	Good	
Border T/C	Aranyaprathet	Poipet	SEC-1	AH-1	Border belt			
Cambodia	Poipet	Sisophon	SEC-1	AH-1	NR-5	47.0	Good	
Cambodia	Sisophon	Battambang	SEC-1	AH-1	NR-5	70.0	Fair	Road is being widened from 2-lane to 4-lane. Development of new road segments to bypass down towns of Battambang, Pursat, Kampong Chhnang, and Preach Kdam is ongoing with expected completion in 2018.
Cambodia	Battambang	Pursat	SEC-1	AH-1	NR-5	104.0	Fair	
Cambodia	Pursat	Kampong Chhnang	SEC-1	AH-1	NR-5	95.0	Fair	
Cambodia	Kampong Chhnang	Preach Kdam	SEC-1	AH-1	NR-5	61.0	Fair	
Cambodia	Preach Kdam	Phnom Penh	SEC-1	AH-1	NR-5	30.0	Good	
Cambodia	Phnom Penh	Neak Loeung	SEC-1	AH-1	NR-1	60.0	Good	
Cambodia	Neak Loeung	Svay Rieng	SEC-1	AH-1	NR-1	65.0	Good	
Cambodia	Svay Rieng	Bavet	SEC-1	AH-1	NR-1	42.0	Good	
Border C/V	Bavet	Moc Bai	SEC-1	AH-1	Border belt			
Viet Nam	Moc Bai	Go Dau	SEC-1	AH-1	QL-22	10.0	Good	
Viet Nam	Go Dau	An Suong (HCMC)	SEC-1	AH-1	QL-22	48.0	Good	
Viet Nam	An Suong (HCMC)	J [AH-1/AH-17]	SEC-1	AH-1	QL-1A	31.0	Good	
Viet Nam	J [AH-1/AH-17]	Ba Ria	SEC-1	AH-17	QL-51	77.6	Good	
Viet Nam	Ba Ria	Vung Tau	SEC-1	AH-17	QL-51	14.0	Good	
[Branch route]								
Thailand	Bangkok	Laem Chabang	SEC-3	AH-19	NH-7	127.0	Good	
Cambodia	Phnom Penh	Thnol Toteung	SEC-4	AH-11	NR-4	30.0	Good	
Cambodia	Thnol Toteung	Kampong Speu	SEC-4	AH-11	NR-4	18.0	Good	
Cambodia	Kampong Speu	Sihanoukville	SEC-4	AH-11	NR-4	182.0	Good	

Note: GMS = Greater Mekong Subregion; AH = Asian Highway; NR = National Road, National Route, etc.);
IMFH = India Myanmar Friednship Highway; MKH = Monywa Kalewa Highway; YME = Yangon Mandalay Expressway; MKR = Myawaddy Kawkareik Road; NSEC = North South Economic Corridor; EWEC = East West Economic Corridor; and SEC = Southern Economic Corridor.
Source: Author's assesment in December 2019 and January 2020; ADB (2018b-h); and the Asian Highway Database (UNESCAP).

Chapter 4

Institutional Arrangements

4.1. Introduction

Institutional arrangements to facilitate cross-border trade and transport are indispensable components of transport or economic corridors across national borders, such as the Greater Mekong Subregion (GMS) economic corridors and the Trilateral Highway (TLH). A road to an international border checkpoint is usually connected to the nationwide road network of the neighbouring country. A road segment looks like a line but is one of many links in a network of roads, connected to other road segments at nodes, i.e. junctions or intersections. Road infrastructure is a necessary condition for defining an economic corridor but not a sufficient condition, because a road segment in an economic corridor could connect to anywhere and, therefore, the economic corridor is indefinite unless its scope is defined by adequate institutional arrangements. The GMS Cross-Border Transport Agreement (CBTA) is a typical example of such institutional arrangements, clearly defining the scope of economic corridors by limiting the routes and the scope of cross-border transport. For example, a truck from Thailand registered under the Initial Implementation of the CBTA (II–CBTA) can enter Myanmar and go up to the Thilawa special economic zone (SEZ) only along the designated route of the GMS East–West Economic Corridor. The truck has to enter Myanmar at Mae Sot at the Myawaddy border, and go through Kawkareik, Thaton, Bago, and then to the Thilawa SEZ. It cannot go to Pathein or Kyaukpyu, for example, because they are off the designated GMS economic corridors. In this way, the GMS–CBTA defines the scope of GMS economic corridors.

The same goes for the TLH. Although the original alignment of the TLH is limited to a 1,360-kilometer (km) section between Moreh and Mae Sot, the road connects to anywhere in India, Myanmar, Thailand, and other countries. The scope of the TLH needs to be defined by an institutional arrangement for cross-border transport facilitation, which prescribes terminal points, border checkpoints, and routes eligible for the TLH. For contracting parties, the scope and designated route for cross-border transport reflect how much they open their domestic markets for land logistic services by granting traffic rights to other contracting parties. Reaching

agreement on this issue is indeed difficult, as the experience of the GMS–CBTA suggests. The II–CBTA between Thailand and Myanmar, which is a simplified version of the GMS–CBTA, started in March 2020, more than a quarter century since the 4th Ministerial Conference on GMS on 15–16 September 1994, when the contracting parties first agreed to establish an institutional mechanism for cross-border transport (Ishida, 2020). In addition to dealing with various technical difficulties, the contracting parties need to find a resolution acceptable to all. For example, if India allows Myanmar trucks to enter its territory only up to Moreh, according to the original alignment of the TLH, Myanmar may hesitate to allow trucks from India to enter farther to Mandalay. The II–CBTA between Thailand and Myanmar allows trucks from Thailand to go up to the Thilawa SEZ and Myanmar trucks to go up to Leam Chabang. This arrangement may balance the benefits to both. The principle of reciprocity matters.

The remainder of this chapter is organised as follows. Subsection 4.2 discusses the current status of institutional arrangements for transport facilitation and the viewpoints of India, Myanmar, Thailand, the Lao People's Democratic Republic (Lao PDR), and Viet Nam, and highlights several policy issues for consideration. Subsection 4.3 compares the Motor Vehicles Agreement for the Regulation of Passenger, Personal and Cargo Vehicular Traffic between Bangladesh, Bhutan, India, and Nepal (BBIN–MVA) and the GMS–CBTA as a potential template for institutional arrangements for transport facilitation for the TLH, including possible eastward extension to Lao PDR, Cambodia, and Viet Nam. Subsection 4.4 discusses several policy options.

4.2. Diverse and Competing Perspectives

This subsection discusses the status of institutional arrangements for transport facilitation and the viewpoints of India, Myanmar, Thailand, Lao PDR, and Viet Nam, and highlights several policy issues for consideration. Considering the nature of international negotiations, it would be naïve to expect the existence of a single best solution that equally satisfies all contracting parties. A resolution acceptable to all contracting parties will be reached only because of multiple and effective negotiations. Issues related to institutional arrangements for cross-border transport facilitation will be discussed from the perspective of each country. The countries are diverse and sometimes competing. This chapter streamlines these complex issues and sets policy agendas for consideration instead of trying to find a specific solution.

(1) Overview[1]

India, Myanmar, and Thailand have significantly enhanced physical connectivity along the TLH because of the development and upgrading of road infrastructure. Institutional arrangements for cross-border transport, however, have yet to be resolved.

Contracting parties of the GMS–CBTA, including Myanmar and Thailand, completed the ratification process in 2015, more than 20 years since the initial discussion in September 1994. During that time, some parts of the CBTA had become outdated and needed to be revised, and the GMS transport ministers agreed in 2016 to launch the Early Harvest implementation of the CBTA (EH–CBTA) and to complete the revision process. The II–CBTA between Thailand and Myanmar took effect with a memorandum of understanding (MoU) signed in March 2019. Under the II–CBTA, trucks from Thailand are now allowed to enter Myanmar to Thilawa and Myanmar trucks can go directly to Leam Chabang.

Despite the high aspirations of the GMS–CBTA, it has not been fully implemented.[2] The reasons for delay include (i) security concerns at border areas, including the risk of smuggling; (ii) difficulties in harmonising related rules and regulations such as right- and left-hand drive and insurance; (iii) protectionist motives for domestic logistic service providers (LSPs); (iv) unwillingness of LSPs to expand their business deep into neighbouring countries; and (v) low demand, particularly for long-haul transport, which is assumed in the design of the GMS–CBTA as transit transport.[3]

On 15 June 2015, India signed the BBIN–MVA with three other countries, which, except for Bhutan, have been drafting the enabling MoU to implement the BBIN–MVA (Government of India, 2020).[4] India has proposed, although not yet publicly, a transport facilitation agreement based on the BBIN–MVA to Myanmar and Thailand to adopt for the TLH. India has not received a response from either country.

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[1] This subsection is based on Ishida (2020).

[2] Transport facilitation agreements in the Association of Southeast Asian Nations (ASEAN) have also stalled because of the difficulty of reaching agreement on transit transport in general and customs transit in particular. Even after spending more than 2 decades from initial conceptualisation, ASEAN's transport facilitation agreements

[3] Our small sample survey shows that demand for cross-border transport is not high amongst LSPs.

[4] After signing the agreement, Bhutan announced that 'it would not be able to ratify the BBIN–MVA for time being and asked the other stakeholders to go ahead with the deal without it. Bhutan fears vehicular pollution and environmental degradation if trucks from neighbouring countries are given access through its territories'. See Gupta (2020) and *The Hindu* (2017).

(2) India[5]

A trilateral motor vehicle agreement (MVA) is crucial for the TLH. The TLH–MVA will be important to facilitate trade, economic cooperation, and people-to-people contact through enhanced regional connectivity, including through easing of regional cross-border road transport. Without an MVA, the TLH would be non-operational. In general, MVA protocols allow safe and secure movement of vehicles along the TLH. Three countries have to reach consensus and reaffirm their understanding that the TLH–MVA safeguards the rights and obligations of all parties under other international agreements, such as the World Trade Organization Trade Facilitation Agreement (WTO–TFA) and bilateral and regional agreements.

However, progress in negotiation of the TLH–MVA between India, Myanmar, and Thailand has been slow. Given that they have ratified the WTO TFA, they may resume MVA negotiation at the earliest opportunity and complete the negotiation before the TLH starts operating. In many areas, the WTO–TFA and TLH–MVA are interrelated.

Table 4.1 Implementation Status of the World Trade Organization Trade Facilitation Agreement Commitments

	Date of acceptance	Date of latest notification	Current rate of implementation commitments				Rate of remaining implementation commitments to be applied		Yet to be designated
			Current rate	Category A	Category B	Category C	Category B	Category C	
India	22-Apr-2016	14-Mar-2018	72.3%	72.3%	0.0%	0.0%	27.7%	0.0%	0.0%
Myanmar	16-Dec-2015	21-Feb-2020	5.5%	5.5%	0.0%	0.0%	9.2%	85.3%	0.0%
Thailand	05-Oct-2015	22-Feb-2018	97.1%	91.6%	5.5%	0.0%	2.9%	0.0%	0.0%
Cambodia	12-Feb-2016	13-Aug-2017	73.5%	60.9%	8.4%	4.2%	10.9%	15.5%	0.0%
Lao PDR	29-Sep-2015	13-Feb-2020	21.0%	21.0%	0.0%	0.0%	11.8%	67.2%	0.0%
Viet Nam	15-Dec-2015	16-Nov-2018	26.5%	26.5%	0.0%	0.0%	48.7%	24.8%	0.0%
China	04-Sep-2015	15-Jan-2020	100.0%	94.5%	5.5%	0.0%	0.0%	0.0%	0.0%

Notes: Developing and least developed country (LDC) members can request more time and capacity-building support to implement the agreement. To benefit from these flexibilities, they must categorise all measures into the following: A: developing members will implement the measure by 22 February 2017 and LDCs by 22 February 2018; B: members will need additional time to implement the measure; and C: members will need additional time and capacity-building support to implement the measure.
Source: World Trade Organization Trade Facilitation Agreement Database (www.tfadatabase.org) (accessed 2 March 2020).

[5] This subsection is based on De et al. (2020), reflecting India's perspectives.

India designated 72.3% of commitments as category A and Thailand 97.1%; both countries have already implemented them. As of 2 March 2020, the remaining commitments for India were 27.7% in category B and for Thailand 2.9%. In contrast, Myanmar's progress in implementing the WTO–TFA has been slow (Table 4.): unimplemented commitments make up 94.5%, of which 85.3% are designated category C, implying that Myanmar needs more time, technical assistance, and capacity building to implement the WTO–FTA. India and Thailand may offer adequate technical assistance and capacity building to Myanmar whilst implementing the TLH–MVA. For India and Thailand, technical assistance to Myanmar will also serve WTO–TFA obligations. To effectively implement the technical assistance, India's National Committee for Trade Facilitation may be engaged to design a technical assistance strategy.

(3) Myanmar and Thailand[6]

At the seventh meeting on the GMS–CBTA in Siem Reap, Cambodia on 13 March 2019, the Joint Committee for the GMS–CBTA agreed to extend the EH–CBTA until 31 May 2021. Myanmar will join in implementing the EH–CBTA through the II–CBTA with neighbouring countries during the grace period extended until 1 June 2021. The first step for Myanmar was the MoU with Thailand on the II–CBTA at the border of Myawaddy and Mae Sot, signed on 13 March 2019. The MoU prescribes to start with each party issuing 100 transport permits, and incorporates an expanded route network encompassing Yangon and Thilawa in Myanmar, Bangkok and Laem Chabang in Thailand, and the Myawaddy–Mae Sot border-crossing point (GMS, 2019).

An addendum to the II–CBTA MoU was signed on the same day, prescribing that (i) the Mae Sot–Myawaddy border-crossing points shall include the First Thai–Myanmar Friendship Bridge and the Second Thai–Myanmar Friendship Bridge at Myawaddy–Wan Takhian Tai; (ii) other existing transport operations shall be integrated under the MoU within 18 months, subject to the total number of permits issued by each party, up to 500 or other number mutually agreed by both parties, sufficient to meet market demand, through signature of an addendum to the MoU; (iii) the designation of routes and points of entry and exit together with the abovementioned extension of the designated route (Figure 4.).

[6] This subsection is based on Banomyong (2020) and MSR (2020).

Figure 4.1. Designated Route in Myanmar for the Initial Implementation of the Cross-Border Transport Agreement between Thailand and Myanmar

Source: 'Addendum to the Memorandum of Understanding on the Initial Implementation of the Agreement between and among the Governments of the Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, the Kingdom of Thailand, and the Socialist Republic of Viet Nam for the Facilitation of Cross-Border Transport of Goods and People at Myawaddy, the Republic of the Union of Myanmar and Mae Sot, Kingdom of Thailand', 13 March 2019.

The list of companies eligible to participate in the II–CBTA was fixed by exchange of official letters dated 21 October 2019 (Table 4.2). The II–CBTA is ready to be operationalised. Authorised vehicles from each side will be able to cross the border and be granted a permit to stay in the other country for 30 days. Cargo trucks from Myanmar can cross the Mae Sot checkpoint to two destinations: Laem Chabang Port, Chon Buri; and the border province of Mukdahan. Vehicles from Thailand can carry goods from the Mae Sot checkpoint all the way to the Thilawa SEZ on the outskirts of Yangon as a result of the extension of the terminal point from Myawaddy to the Thilawa SEZ agreed in the MoU addendum. This will help Thailand and Myanmar companies save time and transport costs and facilitate exports via cross-border trade.

Thailand's truckers and LSPs are not that keen on this arrangement as they prefer to exchange truck tractors at the border (Banomyong, 2020). This sentiment is echoed by some Myanmar providers as local providers prefer their most expensive assets to remain in their country and only trailers moved from origin to destination. However, Thailand has already issued 100 permits to 15 logistic companies and Myanmar 27 to 5.

Table 4.2. Qualified Companies for Cargo Transport under the Initial Implementation of the Cross-Border Transport Agreement

Name of Company	Location	No. of permits
1. Hercules Logistics	Mandalay	5
2. Yangon MK Group Transportation	Yangon	5
3. Resource Group Logistics	Yangon	5
4. Loyal Link	Yangon	10
5. Ni Ni (Myawadi) Trading	Yangon	2
Myanmar Total:		**27**
1. Sirisomboonsub	Tak	8
2. Aruna Transport	Bangkok	4
3. Three Trans (1995)	Rayong	8
4. CTI Distribution	Bangkok	7
5. J&J Logistics System	Ayutthaya	5
6. Sicha Transport	Bangkok	7
7. Samseau Transport	Tak	7
8. One Transport	Bangkok	5
9. Pongrawe Co., Ltd.	Bangkok	7
10. Nittsu Logistics (Thailand)	Ayutthaya	7
11. Mon Transport Co., Ltd.	Bangkok	7
12. Tongputtana Lot., Part.	Tak	7
13. Meechok Transport	Nakhon Ratchasima	7
14. Puechphol Suwannapoom	Tak	7
15. Pongsiri Logistics	Songkhla	7
Thailand Total:		**100**

Note: As of 21 October 2019.
Source: Ministry of Transport, Thailand, and Ministry of Transport and Communications, Myanmar.

Representatives of the Myanmar Container Trucking Association said that local logistics firms and experts are cautious about the new CBTA between Myanmar and Thailand. The association chair commented, '[The II–CBTA] will allow them to drive into each other's countries without having to unload their cargoes at the border point. Thailand wants to be able to travel up to Thilawa in the future as many Japanese manufacturers have production sites in Thailand. But this is something to be considered since Myanmar will also need to protect its logistic companies'. The chair of the Myanmar International Freight Forwarders Association pointed out the importance of reciprocity: 'Myanmar side will also have to do their part in allowing Thai vehicles to use routes other than that agreed upon. We are now able to go to Laem Chabang only since Thai vehicles are only allowed to go to Thilawa' (MSR, 2020).

Stakeholders in Myanmar think the II–CBTA would benefit Thailand more because there are far more imports from Thailand to Myanmar than in the other direction. In addition, local logistic companies will not be utilised as Thailand logistic companies can carry goods directly to the Thilawa SEZ.

(4) Lao People's Democratic Republic

Lao PDR is landlocked and engaging with its neighbours is of crucial importance. The country has engaged with its neighbours bilaterally as well as under various multilateral frameworks such as the Association of Southeast Asian Nations (ASEAN); the GMS Economic Cooperation Program; the grouping known as CLMV (Cambodia, Lao PDR, Myanmar, and Viet Nam); and others. Transport facilitation to allow cross-border movement of vehicles is key to transforming the country from landlocked to land-linked, and opens great opportunities to accelerate economic development.

Despite prolonged efforts since the 1990s, however, transport facilitation arrangements under multilateral frameworks such as ASEAN and the GMS have not been fully operationalised. Instead, Lao PDR has taken advantage of bilateral agreements with all its neighbours except Myanmar since the 1990s. The bilateral agreement on road transport with China was concluded in 1994, followed by comparable agreements with Viet Nam (1996), Cambodia (1999), and Thailand (1999).

Lao PDR shares a 238 km border with Myanmar marked by the Mekong River. In the absence of a road link, a road transport agreement was not necessary. The opening of the Lao–Myanmar

Friendship Bridge on 11 May 2015 changed the landscape. Lao PDR sent an official letter to start negotiation, still ongoing, on the bilateral land transport agreement. In Keng Lap, the Myanmar side of the bridge, the Ministry of Commerce provides customs-related services. However, Xieng Kok, the Lao PDR side, has no customs services. From the viewpoint of Lao PDR, there should be no formal international trade with Myanmar across the bridge without an official agreement on road transport.

The II–CBTA is meant to implement single-window inspections (SWIs) and single-stop inspections (SSIs) stipulated in its Annex 4 (Facilitation of Frontier Crossing Formalities) (Ishida, 2020). The borders designated for II–CBTA programmes are the Lao Bao (Viet Nam)–Densavanh (Lao PDR) border and the Savannakhet (Lao PDR)–Mukdahan (Thailand) border in the East–West Economic Corridor, the Poipet (Cambodia)–Aranyarathet (Thailand) border, the Moc Bai (Viet Nam)–Bavet (Cambodia) border in the Southern Economic Corridor, and the Hekou (Yunnan, China)–Lao Cai (Viet Nam) border in the North–South Economic Corridor. A series of MoUs were concluded by the contracting parties in 2005–2007. The implementation deadlines were stipulated step by step but were not met except for the single-stop physical customs inspection, which was conducted at the Lao Bao–Densavanh border as the first of four steps (Ishida, 2013).[7]

The II–CBTA has been implemented at the Lao Bao–Densavanh border since 6 February 2015. SSIs are conducted in the following way. First, officers of customs, immigration, and quarantine (CIQ) of Lao PDR and Viet Nam are separated into two groups in each country. Second, one Lao PDR group and one Viet Nam group stay at their own borders. One group from each country crosses the border. Third, Lao PDR CIQ officials on the Viet Nam side conduct procedures for exporting and exiting, and Viet Nam CIQ officials on the Viet Nam side conduct procedures for importing and entering. In the same way, Viet Nam CIQ officials on the Lao PDR side conduct procedures for exporting and exiting, and Lao PDR CIQ officials on the Lao PDR side conduct procedures for importing and entering. For example, if a truck transports goods from Lao PDR to Viet Nam, the CIQ inspections are exempted on the Lao PDR side. The truck has to be inspected for exporting and importing and for exiting and entering simultaneously on the Viet Nam side. SSI is conducted for immigration. For instance, when travellers move from Lao PDR to Viet Nam, they meet Lao PDR and Viet Nam immigration officers sitting side by side. First, the travellers

[7] The II–CBTA between Thailand and Myanmar is the second case.

hand their passports to the Lao PDR officer, who checks and stamps the passports. The Lao PDR officer hands the passports to the Viet Nam officer, who checks and stamps the passports and hands them back to the travellers if there are no problems.

(5) **Viet Nam**[8]

Viet Nam signed the GMS–CBTA in Vientiane, Lao PDR on 26 November 1999 and ratified all its annexes and protocols by 2009 (ADB, 2011). This agreement is an important institutional mechanism for Viet Nam to reduce non-physical barriers and facilitate the cross-border movement of goods and people. The agreement covers many areas, including transport, customs, health inspection (sanitary and phytosanitary measures and quarantine), and immigration. The implementation of the GMS–CBTA has not progressed well because of differences in national laws and regulations amongst country members and infrastructure gaps.

Although Viet Nam and Lao PDR are signatories to the GMS–CBTA, its implementation has been mainly undertaken at the Lao Bao–Dansavanh border checkpoint. The procedures for cross-border transport at the Tay Trang border gate are still applied in accordance with previous bilateral agreements between Viet Nam and Lao PDR rather than the GMS–CBTA: (i) agreement on road motorised vehicle facilitation between Viet Nam and Lao PDR, signed on 23 April 2009; (ii) protocol of the implementation of (i), signed on 15 September 2010; and (iii) Circular No.88/2014/TT-BGTVT on guidance on implementing certain articles of (i) and its protocol.

The GMS–CBTA is designed to foster the cross-border movement of goods, vehicles, and people by eliminating obstacles at the border and simplifying procedures. However, vehicles and people crossing the border are required to show documentation. For instance, at Tay Trang border checkpoint, vehicles and drivers from Viet Nam and other countries seeking entry or exit must present (i) a passport or laissez-passer or border identity card, (ii) vehicle driving license, (iii) vehicle registration certificate, (iv) cross-border transport permit, (v) freight or passenger transport permit (if any), (vi) vehicle technical safety and environment protection certificate, (vii) vehicle insurance certificate (if any), and (viii) quarantine certificate.

According to the bilateral agreement, vehicles crossing any border between Viet Nam and Lao PDR are required to carry a GMS cross-border transport permit issued by governing agencies from either side. Viet Nam governing agencies that have the right to issue cross-border transport

[8] This subsection is based on Nguyen et al. (2020).

permits include the Directorate for Roads and the provincial Department of Transport. Lao PDR governing agencies are the Ministry of Public Works and Transport, Department of Transport, the provincial Department of Public Works and Transport, and relevant agencies. A GMS cross-border transport permit includes basic information: (i) issuing authority, (ii) beneficiary of permit, (iii) period of validity, and (iv) vehicle registration number.

An MoU on the EH–CBTA, signed in March 2018, allows each GMS country to issue up to 500 GMS road transport permits and temporary admission documents per country for goods and passenger vehicles registered, owned, and/or operated in their territories, giving foreign freight trucks permission to enter other countries without trans-shipment. However, transport operators seem uninterested in exercising the traffic rights stipulated in the MoU. In Viet Nam, only four companies and 25 vehicles were registered in accordance with the EH–CBTA MoU as of April 2019 (Nguyen et al. 2020).

Cross-border trade between Viet Nam and Lao PDR is stipulated in the Agreement on the Transit of Goods between Viet Nam and Lao PDR, signed in 2009 (amended in 2017). The procedures for cross-border trade are set out in the abovementioned documentation. The agreement guides the Tay Trang Customs Sub-Department in creating the most convenient conditions for the transit of goods.

Of the 15 border checkpoints between Viet Nam and Lao PDR, the Lao Bao–Dansavanh border checkpoint appears to be the most active in implementing the CBTA. The checkpoint has fast-track lanes, SSI, and SWI. Thanks to SSI, customs clearance has decreased from 1.5 hours to 15 minutes. The Tay Trang–Pang Hok border gate, however, has no fast-track lane or SSI or SWI because of the slow implementation of the CBTA.

The bottlenecks of the institutional arrangement for transport and trade facilitation at the Tay Trang–Pang Hok border checkpoint are as follows:

(i) Poor infrastructure. The SSI and SWI are easily carried out at the Lao Bao–Dansavanh, Lao Cai–Hekou, and Moc Bai–Bavet border checkpoints thanks to good infrastructure and the short distance between the border checkpoints. Implementing SSI and SWI at the Tay Trang–Pang Hok border checkpoint, however, is difficult, costly, and time-consuming because of its poor infrastructure and the long distance between the Tay Trang and Pang Hok border gates (6 km).

(ii) Weak coordination and collaboration on CBTA implementation amongst agencies, especially

between the Tay Trang Customs Sub-Department and the Dien Bien Department of Transport. According to Dien Bien Department of Transport officials, the department, one of the main agencies responsible for issuing Viet Nam–Lao PDR cross-border transport permits for vehicles, is not assigned to implement the CBTA.

4.3. BBIN–MVA and GMS–CBTA[9]

(1) Similarities

The BBIN–MVA and the GMS–CBTA have much in common:

(a) The BBIN–MVA stipulates that, on the admission of entry of vehicles registered in other contracting parties, 'all the vehicles of a Contracting Party will require a permit for plying through the other Contracting Party(ies) and the permit will be issued in compliance of all the technical requirements...' (Article III [1]). The GMS–CBTA stipulates that 'the Contracting Parties shall admit Vehicles registered by another Contracting Party to enter their territory' (Article 11). The articles are similar even though their tones are different. Both agreements admit the transport of people and goods. Under the BBIN–MVA, transport permits for regular passenger transport, regular cargo transport, personal vehicles other than regular passenger transport, and non-regular passenger vehicles are issued upon request of a registered operator's filling in forms A, B, C, and D, respectively. Under the GMS–CBTA, the permits for scheduled and non-scheduled passenger and cargo transport are issued in accordance with Article 4, Protocol 3. Under the BBIN–MVA, the transport permit for regular or scheduled transport is for multiple entries, valid for 1 year, and renewable every year (Article III [7]). The validity of the GMS–CBTA is stipulated for 1 year (Article 4 of Protocol 3). Multiple visas under the BBIN–MVA are issued for crew members (Article V) and under the GMS–CBTA for people engaged in transport operation (Article 5). The BBIN–MVA prescribes that 'sector and the details of route, route maps, location of permitted rest or recreation places, tolls and check posts … will be specified in the Protocol in the format as at Annexure-I' (Article III [8]). Under the GMS–CBTA, Protocol 1 defines permissible routes, and points of entry and exit for cross-border transport of goods and people (Article 20) and lists the permissible corridors, routes,

[9] This subsection is based on Ishida (2020).

and border crossings in its attachment.

(b) The BBIN–MVA requests cross-border transport drivers to carry several documents (Article IV [2]) and requires 'a valid registration certificate'. The GMS–CBTA states that 'every motor vehicle in cross-border traffic shall carry a valid certificate of registration' (Article 5 of Annex 2). The registration certificate bears information such as the issuing authority, the owner or holder of the certificate, and the technical requirements of a vehicle. The serial numbers of the chassis and engine are technical requirements in the registration certificate of the GMS–CBTA and in the permit for each trip under the BBIN–MVA. The BBIN–MVA requires a valid transport permit (Article IV [2]) and the GMS–CBTA requires a GMS road transport permit (Article 1 of Protocol 3). The BBIN–MVA requires the crew to have pre-verified passports and the passengers internationally recognised valid travel documents such as a valid driving license and a valid insurance policy (vii, Article IV [2]). Under the GMS–CBTA, those crossing the border require a valid travel document (Article 2 of Annex 5); a driving permit (Article 17); and compulsory third-party motor vehicle liability insurance (Article 16).

(c) Article VI of the BBIN–MVA enumerates restrictions and follows the principle of cabotage: vehicles registered by one contracting party are not permitted to transport local passengers and goods within the territory of other contracting parties. Cabotage does not prohibit picking up passengers or goods in the transporter's own territory and transporting them to the territory of other contracting parties, or picking up passengers or goods in the territory of other contracting parties and transporting them to the transporter's own territory. Under the GMS–CBTA, cabotage shall only be permitted on the basis of a special authorisation from the host country, in step with free market forces (Article 19).

(d) The BBIN–MVA prescribes fees and charges: 'all fees and charges of issue of permit for the vehicle of one Contracting Party will be levied only at the entry point of another Contracting Party' (Article VII [3]), and provisions of internal laws or agreements will be applied to taxation and fees for cross-border procedures (Article VII [1]). Under the GMS–CBTA, 'only legally authorised authorities are entitled to collect the charges' (Article 4 of Protocol 2). Under the BBIN–MVA, 'no additional charges such as octroi or local taxes will be levied on transportation of passenger vehicles' (Article VII [4]**)**. Under the GMS–CBTA, 'any unauthorised collection of charges is prohibited' (Article 4 of Protocol 2).

(e) Under the BBIN–MVA, temporary admission of vehicles into their own territory and baggage carried by the crew are free from customs duty (Article VII [2, 4]). The GMS–CBTA stipulates temporary admission to motor vehicles and spare parts without payment of import duties and taxes (Article 18) and provides further detailed rules (Annex 8). The BBIN–MVA prescribes fees and charges: 'the standard accessories of the vehicles, essential spares, fuel and oils contained in its supply tanks before entering in another contracting party should be exempted from duties and taxes' (Article VII [2]). The GMS–CBTA stipulates that 'the accessories, toolkit, and other articles that form normal equipment of the vehicle and the fuel in the ordinary/original supply tanks and the lubricants, maintenance supplies, and spare parts shall be exempted from import duties and taxes' (Article 2 of Annex 8).

(f) The BBIN–MVA stipulates road signs and signals and compliance with traffic laws (Article VIII) and that 'the designated authorities of the Contracting Parties will provide international road signs along the specified routes' (Article VIII [1]). The GMS–CBTA also stipulates that 'the contracting parties to undertake gradually bring the traffic signs and signals on their territory' (Article 26); vehicles of one contracting party must observe traffic laws in the territories of other contracting parties (Article VIII [2]); and people, transport operators, and vehicles must comply with the laws and regulations of the host country (Article 30).

(g) Under the BBIN–MVA, authorised officers of customs and of land and dry ports have the right to inspect and search vehicles operating in their territory (Article X). The GMS–CBTA is intended to reduce cross-border barriers (Article 4).

(h) Under the BBIN–MVA, 'in case of over-stay in any Contracting Party due to vehicle breakdown, accident, repair works or other unforeseen circumstances including natural calamities or disasters, a member of the driving crew will notify to the competent authority of that Contracting Party for the required period' (Article IX). The GMS–CBTA, covers vehicles in transit transport operation (Article 8 of Annex 6); temporarily admitted vehicles (Article 8 of Annex 8); and temporarily admitted containers (Article 9 of Annex 14). The articles stipulate that 'the Host Country Customs Authorities will grant extension' in case the transport operator is unable to timely complete the transport operation in the territory of the host country and the operator requests an extension. The articles also stipulate the exemption of re-exportation of the vehicle in case of loss or destruction en route and the change of itinerary in case the transport operator is compelled to abandon the designated route due to force

majeure.

(i) Under the BBIN–MVA rules on insurance, non-regular and regular passenger transport and regular cargo vehicles must have an insurance policy (Article XI [1, 2]). Non-regular passenger transport will be insured against 'at least third-party loss, in all the Contracting Party(ies) where the vehicle is allowed to ply' (Article XI [1]). The GMS–CBTA prescribes that 'motor vehicles traveling to the territory of other Contracting Parties shall comply with the compulsory third-party motor vehicle liability insurance required in the Host Country' (Article 16).

(j) Under the BBIN–MVA rules on business facilitation, transport operators of other contracting parties are permitted to open branch offices or appoint agents (Article XII [1]). Authorised operators will obtain work permits for their employees deployed to a branch office in another contracting party. Authorised operators are permitted to open bank accounts in other contracting parties (Article XII [2]). The GMS–CBTA prescribes that 'the Host Country shall grant permission to Transport Operators engaged in cross-border transport to establish representative offices for the purpose of facilitating their traffic operations' (Article 22), but does not permit representative offices to obtain work permits or open bank accounts. However, permission might be reinforced by other laws and/or regulations in the host country. The GMS–CBTA has rules on supporting other contracting parties' vehicles that may be disabled on the roads and requests the host country to provide all possible assistance and to notify the competent authorities of the home country as soon as possible in case of a road traffic accident (Article 33).

(k) The BBIN–MVA prescribes the applicability of local laws (Article XIV) and rules that '(t)he National Laws of the respective Contracting Parties will govern matters other than those in this agreement' (Article XIV [2]). Under the GMS–CBTA, 'People, Transport Operators and Vehicles shall comply with the laws and regulations in force in the territory of the Host Country' (Article 30). The BBIN–MVA rules that '(t)he Contracting Parties will cooperate effectively with one another to prevent infringement and circumvention of the laws, rules and regulations of their respective countries in regard to matters relating to the movement of vehicles' (Article XIV [3]). The GMS–CBTA stipulates that '(t)he Host Country may temporarily or permanently deny access to its territory to a person, a driver, a Transport Operator, or a Vehicle that has infringed the provision of the Agreement or its national laws

and regulations' (Article 30). The BBIN–MVA will not affect the rights and obligations arising from other international commitments of the contracting parties and the existing bilateral agreements or arrangements between the contracting parties (Article XIV [4, 5]). The CBTA stipulates that '(t)he Agreement or any actions taken thereto shall not affect the rights and obligations of the Contracting Parties under any existing agreements or international conventions to which they are also Contracting Parties' (Article 41).

(2) Major Differences

The BBIN–MVA and the GMS–CBTA differ in length of history, fundamental tone, and cooperative regimes. Only the existence and non-existence of rules on transit facilities will be discussed in this sub-section:

(a) The numbers of articles and annexes are much different. The GMS–CBTA has 44 articles in the main agreement and 20 annexes and protocols with a total of 407 articles (Ishida 2013, Table 1), including overlapping articles in multiple annexes and protocols. The BBIN–MVA has only 17 articles and 3 annexes.

(b) The periods from discussion to signing and/or ratification are much different. The GMS–CBTA was discussed under the GMS Economic Cooperation Program. Member countries started discussing the need for 'software' for a transport system to eliminate the barriers to cross-border transport at the 4th Ministerial Conference on 15–16 September 1994. The six countries signed the main agreement, 17 annexes, and 3 protocols, and ratified the main agreement on 17 September 2003. All the annexes and protocols were ratified by all six countries in 2015. Discussions and negotiations took 20 years. The draft of the BBIN–MVA, however, was proposed by the Government of India to the South Asian Association for Regional Cooperation Summit in November 2014, but it was not signed because of Pakistan's reservations. The draft was signed at the transport ministerial meeting of Bangladesh, Bhutan, India, and Nepal on 15 June 2015 (Government of India, 2015). From the proposition to the signing took about 7 months. However, the agenda of 'trade, connectivity and transit' and of 'water resource management and power/hydropower trade and grid connectivity' had been discussed by the inter-governmental Joint Working Group of the BBIN (Hassan 2016: 16).[10]

[10] Hassan (2016) did not mention the time it took to start discussing the agenda but it must have been between 1997 and 2014. In 1997, Bangladesh's proposal to establish the South Asian Growth Quadrangle, composed of BBIN member countries, was recognised at the Ninth Summit of the South Asia Association

The discussion on the GMS–CBTA, however, was longer and deeper.

(c) Because the starting point for negotiation of the GMS–CBTA was to eliminate cross-border barriers, its tone was not regulatory but liberalising, unlike the BBIN–MVA. Many GMS–CBTA clauses request the contracting parties to liberalise something with the stronger auxiliary 'shall'. The BBIN–MVA has a regulatory tone but does not use the auxiliary 'shall'. Instead, it uses 'will', except in Article XVII, which stipulates, 'Each Contracting Party shall keep an original of this Agreement'. For instance, the BBIN–MVA stipulates that authorised officers such as customs, police, and security officers have the right to inspect and search vehicles operating in their territories (Article X [1]). Such an article is not unusual and can be found in other laws, regulations, and agreements related to cross-border transport facilitation. The GMS–CBTA, however, stipulates that 'the Contracting Parties shall gradually adopt the following measures in order to simplify and expedite border formalities in accordance with Annex 4' and lists SWI and SSI (Article 4).

(d) Regarding the cooperative regime for deliberation and negotiation, the GMS–CBTA requests, using 'will', the contracting parties to establish a permanent national transport facilitation committee (NTFC) and the representatives of the NTFCs to form together a joint committee (Articles 28 and 29, main agreement). The BBIN–MVA does not prescribe such an organisational regime.

(e) The GMS–CBTA prescribes rules on transit transport (Articles 7 and 8; and Annex 6). The BBIN–MVA does not prescribe detailed rules on transit facilities, including the exemption of customs inspection and customs payments in middle countries as long as cross-border cargoes are sealed. The BBIN–MVA refers, however, to 'transit' in some articles: for instance, 'transit or in the destination Contracting Parties' (Article IV [7]) and 'transit fees' (Article VII [4]). The BBIN–MVA may not prescribe the exemption of customs inspection and customs payments in middle countries, but it refers to 'transit fees'. Bangladesh, for example, receives transit fees from transport operators of other contracting parties (Sharmeen, 2017). The GMS–CBTA, however, does not directly refer to transit fees and stipulates that 'the Host Country shall, with regard to the levying the charges, not discriminate' (Article 2[a] of Protocol 2). But the GMS–CBTA prescribes that 'the least developed Contracting Parties (determined

for Regional Corporation at Male.

on the basis of the United Nations' designation of least developed countries [LDCs]) may apply preferential toll rates and other charges to the vehicles registered within their territories, when undertaking domestic transport' (Article 2[b] of Protocol 2). For instance, if a motor vehicle registered in Thailand transports goods to Viet Nam by way of Lao PDR or Cambodia, Lao PDR and Cambodia can charge that motor vehicle but not charge domestic transport operators. If a motor vehicle registered in Lao PDR transports goods to Laem Chabang Port in Thailand for export to Europe, Thailand shall not charge transit fees as far as Thailand does not charge domestic transport operators.

(3) Technical Differences

The BBIN–MVA and the GMS–CBTA have technical differences:

(a) The GMS–CBTA prescribes that 'each Contracting Party shall be entitled to issue up to 500 permits' for cargo and non-scheduled passenger transportation and '(t)his arrangement shall be subject to annual review and modification by the Joint Committee' (Article 5 of Protocol 3). The BBIN–MVA, however, does not specify the maximum number of permits (Article III) but stipulates that '(c)ontracting Parties will decide on the number of cargo and personal vehicles and volume of traffic under this Agreement through consultation and agreement' (Article VI [6]). The BBIN–MVA further prescribes that 'installation of a tracking system on motor vehicles as well as containers at the cost of entering vehicle/container will be introduced within two years from the signing agreement' (Article III [13]). The GMS–CBTA stipulates that 'the Contracting Parties will endeavour to keep up with technical developments and to implement at their earliest convenience modern and advanced border crossing techniques such as: machine reading of passports, X-ray machine for goods and container inspection, automatic vehicle identification (license plate readers), and bar code readers for other documents' (Article 7 of Annex 12). However, a tracking system on motor vehicles and containers is not listed here.

(b) For cross-border transport, the BBIN–MVA requires a list of passengers and their nationalities; a way bill and list of personal goods and/or articles in possession of the crew; and the registration certificate, transport permit, travel documents of the crew, and insurance policy (Article IV). The GMS–CBTA does not require these documents. Article IV [2] of the BBIN–MVA and Article 17 of the GMS–CBTA require contracting parties to recognise driving

licenses issued by other contracting parties on a reciprocal basis. The driving licenses stipulated in the GMS–CBTA are based on the Agreement on the Recognition of Domestic Driving Licenses issued by ASEAN Countries, signed in Kuala Lumpur on 9 July 1985. The BBIN–MVA requires a conductor, helper, and cleaner of a regular passenger or cargo transport vehicle to hold a valid certificate, while the GMS–CBTA does not have such a detailed rule. The BBIN–MVA requires at least one member of the crew to be able to communicate in English or in a language understood (Article IV). The GMS–CBTA assumes such a rule because identification marks, registration certificates, and registration plates and the particulars must be in English (Article 3 of Annex 2).

(c) The BBIN–MVA stipulates restrictions. Major repair work is prohibited in another contracting party except in the event of accidents and break down (Article VI [3]). Vehicles requiring urgent repair are allowed to have repairs done at nearby equipped workshops in the other contracting party and, in case of accidents, all consequential repairs may also be permitted in the contracting party where the accident occurred (Article VI [4]). The BBIN–MVA regulates legal proceedings against the driver of the vehicle in case of an accident in accordance with laws of the contracting party where the accident occurred (Article VI [5]). The GMS–CBTA does not have similar regulations. In case of a road traffic accident, the GMS–CBTA requests the host country to provide all possible assistance and notify the competent authorities of the home country as soon as possible (Article 33). The BBIN–MVA stipulates that '(t)he Border Check Posts, Land Ports/Dry Ports and Land Customs Stations of the concerned Contracting Party(ies) will endorse entry/exit particulars of the vehicles on the permit' (Article VI [7]). The GMS–CBTA does not specify who endorses the entry or exit particulars but it does specify the customs officer, and the immigration or quarantine officer, as authorised to conduct SSI (Article 5 of Annex 4).

(d) On fees and charges, the BBIN–MVA prescribes that 'a Customs subgroup having participation from all the Contracting Parties will be set up to formulate the required Customs and other procedures and safeguards with regard to entry and exit of vehicles' (Article VII [7]). The GMS–CBTA, however, does not stipulate forming a customs subgroup.

(e) Both agreements require vehicles transporting goods to the territory of the other contracting parties to have an insurance policy at least against third-party loss (Article XI, BBIN–MVA; Article 16, main agreement, GMS–CBTA). The BBIN–MVA prescribes the provision of facilities

by appropriate authorities of each contracting party to the insurance company of the other contracting parties to carry out all necessary steps such as survey, assessment, investigation, settlement of claims, and remittance in connection with such operation (Article XI [3]). The BBIN–MVA also stipulates that such appropriate authorities will extend assistance for expeditious settlement of the claims and provide facilities to the persons concerned in the event of an accident resulting in damage to a third party's property or loss of life or injuries to third parties (Article XI [4]). The GMS–CBTA does not facilitate insurance companies in other contracting parties.

(f) On the movement of goods, the BBIN–MVA refers to the 'applicability of local laws' and prescribes that '(t)he Contracting Parties agree not to permit the movement of goods which are either prohibited or restricted under the prevailing laws and regulations of the respective countries, and any negative/sensitive list agreed upon by the Contracting Parties' (Article XIV [1]). The GMS–CBTA stipulates that dangerous goods (Annex 1) and perishable goods (Annex 3) should be moved in different ways. The agreement shall not apply to the transport of dangerous goods (Annex 1), while the cross-border transport of the dangerous goods is exceptionally admitted on a case-by-case basis if the contracting permit follows the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the UN Recommendations on the Transport of Dangerous Goods – Model Regulations (Article 10). The GMS–CBTA also states that '(t)he transport of Perishable Goods, as defined in Annex 3, shall be granted a priority regime for border crossing clearance formalities, set out in Annex 3, so that they may not be unduly delayed' (Article 10). Annex 3 stipulates the rules on how to treat live animals, perishable foodstuffs, and other perishable commodities with appropriate temperature, humidity, safety, hygiene, and space requirements.

(4) Other Technical Differences

A comparison of the BBIN–MVA and the GMS–CBTA shows that the agreements have many common and similar articles and not many technical differences. However, there are a number of technical differences. The GMS–CBTA has detailed annexes such as Road and Bridge Design, Construction, and Specifications (Annex 11) and Commodity Classification System (Annex 15). Several rules prescribed in one sentence of the articles of the BBIN–MVA are stipulated as an annex or a protocol of the GMS–CBTA: e.g. Carriage of Dangerous Goods (Annex 1), Carriage of Perishable Goods (Annex 3), Road Traffic Regulation and Signage (Annex 7), Temporary

Importation of Motor Vehicles (Annex 8), and Criteria for Driving Licenses (Annex 16). Enumerating all such technical differences is not realistic and it would be better to enumerate only the essential ones.

First, the GMS–CBTA provides Temporary Importation of Motor Vehicles (Annex 8) for motor vehicles and Container Customs Regime (Annex 14) for containers, but the annexes contain almost identical sentences. The EH–CBTA articles have the same sentences for motor vehicles and for containers. The BBIN–MVA, however, stipulates rules on motor vehicles but not on containers, except with respect to the installation of a tracking system (Article VI [7]).

The GMS–CBTA stipulates rules on multimodal transport in Multimodal Carrier Liability (Annex 13a) and Criteria for Licensing of Multimodal Transport Operators for Cross-border Transport Operators (Annex 13b). Annex 13a stipulates liabilities of multimodal transport operators and of consignors in its attachment, and Annex 13b stipulates the eligibility of multimodal transport operators. The composition of these annexes is similar to that of Conditions of Transport (Annex 10) and Criteria for Licensing of Transport Operators for Cross-border Transport Operations (Annex 9). The BBIN–MVA does not stipulate such rules for multimodal transport.

The GMS–CBTA stipulates the priority for border-crossing formalities: (i) passengers with higher priorities or sick passengers; (ii) perishable goods, including fresh food; (iii) live animals; and (iv) other merchandise (Article 9 of Annex 4). However, when border crossers are, upon medical examination, found to be infected with contagious disease endangering public health, the competent authority (i) may deny access to the territory or repel foreign individuals if their health condition enables them to travel, and advise them to return to their home country; (ii) if their health condition does not enable them to travel, shall offer them appropriate medical care and treatment in isolation or quarantine; and (iii) shall notify promptly the World Health Organization via appropriate channels in accordance with the applicable rules (Article 3 [d] of Annex 5).

4.4. Conclusion

No transport facilitation agreement covers the three member countries of the TLH.

The BBIN–MVA was signed on 15 June 2015 and Bangladesh, India, and Nepal are preparing to

implement it (Government of India, 2020).[11] India has proposed, although not yet publicly, a transport facilitation agreement based on the BBIN–MVA to Myanmar and Thailand to adopt for the TLH. India has not received a response from either.

Contracting parties of the GMS–CBTA, including Myanmar and Thailand, completed the ratification process in 2015, which took more than 20 years since initial discussions in September 1994. During that time, some parts of the GMS–CBTA became outdated and needed to be revised, and the GMS transport ministers agreed in 2016 to launch the EH–CBTA and to complete the revision process. The II–CBTA between Thailand and Myanmar took effect with an MoU signed in March 2019. Under the II–CBTA, trucks from Thailand are now allowed to enter the territory of Myanmar to Thilawa and Myanmar trucks can go directly to Leam Chabang.

Despite the high aspirations of the GMS–CBTA, it has not been fully implemented even after 2 decades of continuous efforts. The reasons for delay include (i) security concerns at border areas, including the risk of smuggling; (ii) difficulties in harmonising related rules and regulations such as right- and left-hand drive and insurance; (iii) protectionist motives for domestic LSPs; (iv) unwillingness of LSPs to expand their business deep into neighbouring countries; and (v) low demand, particularly for long-haul transport, which is assumed in the design of the GMS–CBTA as transit transport.[12] During the process of deepening economic integration in ASEAN and surrounding regions, manufacturing activities have been fragmented into several production blocks, and some were relocated to neighbouring countries with better-fit location advantages for the production blocks (ERIA, 2010). As a result, cross-border trade of raw materials, parts, and final products has increased, accompanied inseparably by demand for more frequent cross-border transport. Whilst negotiating the GMS–CBTA, GMS countries enabled cross-border transport by using bilateral agreements with their neighbours. Although such a combined use of bilateral agreements may not be the best solution to meet increasing demand for cross-border transport, it has worked well enough as a second-best solution. Pragmatically, a feasible second-best solution is often better than an unfeasible best solution.

A recommendation is to set up a high-powered committee to facilitate cross-border transport and trade. The committee may be modelled after the Joint Committee under the GMS–CBTA,

[11] Bhutan temporarily withdrew from the agreement in 2017 because of fear of an influx of vehicles from other countries impacting its own transporters and degradation of environment (The Hindu, 2017).
[12] Our small sample survey shows that demand for cross-border transport is not high amongst LSPs.

which is formed by representatives of NTFCs of member countries.[13] Thailand and Myanmar have already established NTFCs and have the capacity to represent themselves in the committee. To take advantage of the existing framework, it is recommended that India organise a national committee corresponding to an NTFC to represent the country during negotiation and implementation.

Whilst comparing the pros and cons of multiple options for transport facilitation arrangements, such as the BBIN–MVA and the GMS–CBTA, it is recommended as a first step to start using bilateral agreements, particularly by forging a bilateral cross-border transport agreement between India and Myanmar, as the II–CBTA between Myanmar and Thailand is already in operation.

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[13] 'Agreement between and amongst the Governments of the Lao People's Democratic Republic, the Kingdom of Thailand, and the Socialist Republic of Viet Nam for the Facilitation of Cross-Border Transport of Goods and People' stipulates the establishment of NTFCs and the formation (Article 28) of the Joint Committee (Article 29). See ADB (2011) for the original text of the agreement.

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Chapter 5

Perspectives from the North Eastern Region of India[1]

The North Eastern Region of India (NER), consisting of the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim (Figure 5.1), is India's natural resource powerhouse. The region is endowed with not only vast natural resources, such as oil, natural gas, and hydro power, but also agro-climatic conditions that have been helping the region to grow some of the country's best agro-forestry products. A well-educated labour force, relatively high literacy rate, and access to clean water are some of its unique strengths over other Indian states. In addition, the NER is surrounded by an international border, serving as India's gateway east. However, against these strengths, there are weaknesses and threats emanating to a large extent from the difficult terrain of the region and inadequate infrastructure (Sarma and Bezbaruah, 2009). These pose some of the greatest constraints to economic growth, thereby nullifying the NER's border advantage. Transport and logistics bottlenecks have also long been identified as serious constraints to the growth of the NER.[2]

Overall, trade and transportation infrastructure in the NER is dominated by the distribution of goods and products that are sourced mostly from the rest of India. The region lags behind the rest of India in its pace of economic growth and has a relatively small regional market.[3] Trade has a special significance for the economies of the NER states. The growth potential is considerably high in the NER when one takes account of its geographical proximity to the growing Southeast Asian and East Asian markets. Given its geographical location, enhanced engagement with the Association of Southeast Asian Nations (ASEAN) under the Act East Policy (AEP) may generate new economic opportunities, thereby fuelling growth in the NER, ceteris paribus.[4]

The NER is central to the AEP. The AEP is designed to provide economic opportunities to the NER to benefit from its vast border and vibrant neighbours. The NER's value chain potential can be

[1] This chapter is a summarised and re-structured version of De et al. (2020), and the focus is placed on the perspective of India. Some sections in De et al. (2020) are used in other relevant chapters of this report.
[2] See, for example, De (2011), Brunner (2010), RIS (2012a), and De and Kunaka (2019).
[3] The total population is about 46 million (2011 census), with 70% living in Assam alone.
[4] See, for example, Kathuria and Mathur (2019).

unlocked if border infrastructure and transportation networks, in particular, are improved.[5] In other words, the improvement of border infrastructure coupled with enhanced transportation networks with Southeast Asia may provide new economic opportunities to the NER (Sarma and Choudhury 2018).

Figure 5.1. The Northeastern Region of India

Source: Maps of India (www.mapsofindia.com).

To strengthen the connectivity between India and ASEAN, the Trilateral Highway (TLH) between India, Myanmar, and Thailand is being developed, and there is a plan to extend the TLH to Cambodia, the Lao PDR, and Viet Nam.[6] Completion of the TLH is likely to facilitate the faster movement of goods and people between India and ASEAN[7] and add growth impetus to the NER (De et al. 2019).

[5] See De and Majumdar (2014), Singh (2020), and Das (2020).

[6] At the ASEAN-India Informal Breakfast Summit on 15 November 2018, the Leaders welcomed India's proposal for a study by the Economic Research Institute for ASEAN and East Asia (ERIA) on developing an economic corridor along the TLH and the feasibility of its extension to Cambodia, the Lao PDR and Viet Nam.

[7] See Kimura and Umezaki (2011), Kumagai and Isono (2011), De (2016), to mention a few.

The aim of this chapter is to shed light on the economic principles underlying the NER market and to offer new ideas on how its potential can be better exploited by developing the TLH. As the NER will be at the forefront of the TLH on the Indian side, this study assesses the status of the economic linkages of the NER to identify the constraints behind and at the India–Myanmar border, and recommends policy measures to augment the linkages between the NER and Southeast Asia.

5.1. Rationale of an Integration Synergy for the NER

The NER is a US$43 billion economy, contributing about 2% to India's gross domestic product (GDP). Assam is the largest economy in the NER, comprising 57.0% of the GDP of the NER as a whole (Table 5.1). Services are the mainstay of the economies of the NER, accounting for 62% of GDP and a major source of employment and livelihood in the region. Except for Sikkim, the NER states are services-driven, which is very much consistent with the national trend. The agriculture sector comprises almost 27.3% of GDP, which is another lifeline to the NER economy.

Table 5.1. Economic Profile of the NER

	Per Capita NSDP[2] FY2017/18		NSDP[2] FY2017/18		Share of GSDP FY2016/17			CAGR of NGDP FY2011/12-17/18
	USD	Ratio	USD bil.	Share in NER	Agriculture	Industry	Service	
Arunachal Pradesh	1,528	1.00	2.29	5.3%	38.8%	3.8%	57.4%	6.7%
Assam[1]	782	0.51	24.45	57.0%	30.7%	14.6%	54.7%	6.2%
Manipur	785	0.51	2.48	5.8%	16.8%	3.4%	79.8%	5.9%
Meghalaya	989	0.64	2.91	6.8%	27.3%	6.9%	65.9%	1.6%
Mizoram	1,591	1.04	1.87	4.4%	30.0%	0.9%	69.2%	10.6%
Nagaland[1]	948	0.62	1.94	4.5%	29.7%	1.6%	68.7%	4.7%
Sikkim	3,074	2.00	2.10	4.9%	7.8%	48.1%	44.1%	6.2%
Tripura	2,151	1.40	4.84	11.3%	37.1%	5.6%	57.3%	10.6%
NER[3]	1,481	0.97	42.88 [4]	100.0%	27.3%	10.1%	62.1%	6.5%
India	1,534	1.00	2,018.60	-	20.3%	17.8%	61.9%	6.7%

Notes: (1) Values for 2016–2017; (2) taken at constant prices at base 2011–2012; (3) simple average of the eight NER states as applicable; and (4) total of NER states. NSDP, GSDP, NGDP, and CAGR stand for net state domestic product, gross state domestic product, nominal gross domestic product, and compound average growth rate, respectively.
Source: Calculated based on *The Economic Survey of India*, Ministry of Finance, Government of India and *The Handbook of Statistics on Indian Economy*, Reserve Bank of India.

In contrast, industry has a small share in the NER economy (10.1%). The existing industries of the NER include coke and refined petroleum products, food products, and a range of manufactured products, including wood, furniture, beverages, pharmaceuticals, metal products, rubber, and plastics products.[8] Industries requiring large-scale production, such as petrochemicals, cement, steel, and sugar, are not present despite the fact that the region is a rich source of the basic raw materials required as inputs for such industries.

The per capita income of the entire NER is slightly below the national average, with a ratio of 0.97 of the national average (Table 5.1). In terms of per capita income, Sikkim is the richest state in the NER, followed by Tripura and Mizoram, with per capita income ratios to the national average of 2.00, 1.40, and 1.04, respectively. The economic growth of most of the NER states is growing close to the national average growth rate (6.7%), with the exceptions of Mizoram (10.6%) and Tripura (10.6%). Today, the rise in construction of public utilities in the NER is, thus, a manifestation of the NER's growth. The NER presently witnesses the construction of roads and highways, bridges, railways, airports, land ports, and many such projects (NITI Aayog, 2018).

However, the NER suffers from infrastructure deficits. The region requires more quality infrastructure, both physical and social. A high level of infrastructure investment is a precursor to economic growth (Barro 1990). The scatter diagram in Figure 5.2 shows a positive association between road density and per capita income amongst the Indian states, thereby suggesting enormous scope for further improving the income level of Indian states with higher capital accumulation. At the same time, the NER lags behind other Indian states in terms of technological progress and capital accumulation, which are essential for growth and development. The NER's capital accumulation base is abysmally low, and technological progress is rather slow. Infrastructure investment is, therefore, needed not only to build the national infrastructure but also to strengthen its capital accumulation.[9]

On the supply side, strengthening the NER's current level of trade and economic linkages with neighbouring countries will require infrastructure and institutional support, which, gradually, will facilitate growth and remove the region from economic isolation (Figure 5.3). Investment in

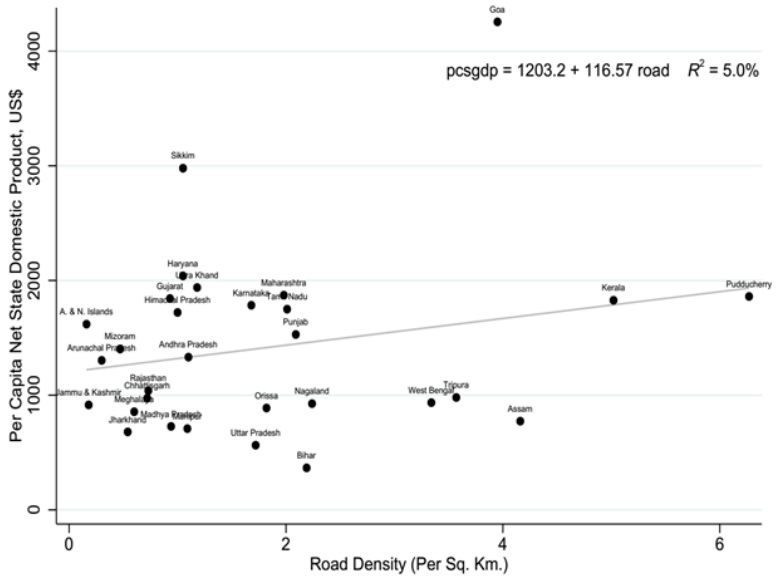
[8] Based on the NEC Databank.

[9] Several studies argue that the NER needs major improvements in its border infrastructure, particularly to facilitate trade and investment with Bangladesh and Myanmar. See, for example, Das and Purkaystha (2010), RIS (2012a, 2012b), De and Ray (2013), De and Majumdar (2014), Dutta (2015), and Das (2020).

physical and institutional infrastructure may augment production, both within and across borders, and enhance the growth of the region.

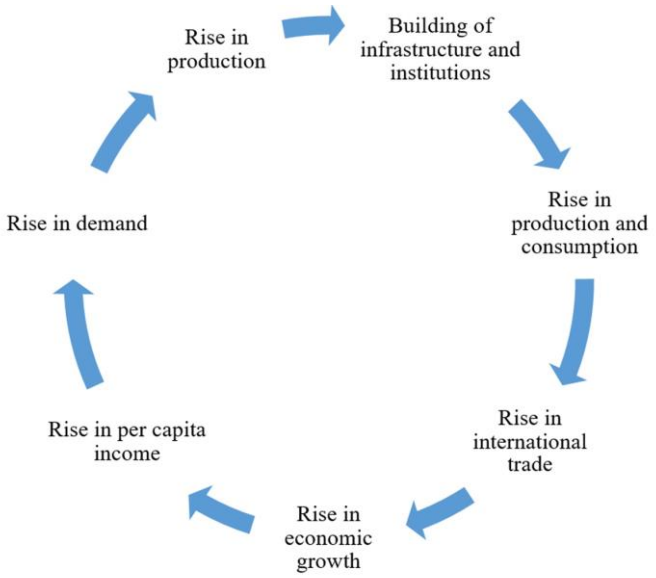
Considering the above, building infrastructure networks, such as the TLH and its potential extension to the Mekong subregion, may facilitate trade and integration between India and Mekong (CLMV-T) countries. The synergy between them may enable the NER to realise the benefits of economic integration and generate new growth potential.

Figure 5.2. Per Capita Income and Infrastructure Development (FY2016/17)



Notes: Values for FY2016/17 taken at constant prices at base FY2011/12.
Source: De et al. (2020), originally based on *the Handbook of Statistics on Indian Economy*, Reserve Bank of India and National Highway Authority of India (NHAI).

Figure 5.3. Removing Economic Isolation: Development Cycles for the NER



Source: De and Majumdar (2014).

5.2. The TLH and the Eastward Extension

Enhancing connectivity between ASEAN and India is a major thrust of ASEAN's Master Plan on ASEAN Connectivity (MPAC) 2025 and India's Act East Policy (AEP). In order to foster regional cooperation and integration through deeper economic relations and people-to-people linkages, it is important to establish well-designed connectivity for the region by developing strategies to enhance economic, industrial, and trade relations between India and ASEAN. The current foundations of ASEAN–India connectivity need to be updated and synced with the progress in physical connectivity within ASEAN and between India and ASEAN. In this context, the ongoing connectivity project of the TLH between India, Myanmar, and Thailand and the potential extension towards Cambodia, the Lao PDR, and Viet Nam would enable the increased exchange of goods, services, and movement of people between India and ASEAN. In addition, connecting India's NER with Southeast Asia would contribute to higher trade and investment, strengthen regional value chains, create jobs, and bring greater people-to-people contact, amongst others, and would further strengthen the relationship with Myanmar in enhancing ASEAN–India connectivity.

(1) The Trilateral Highway

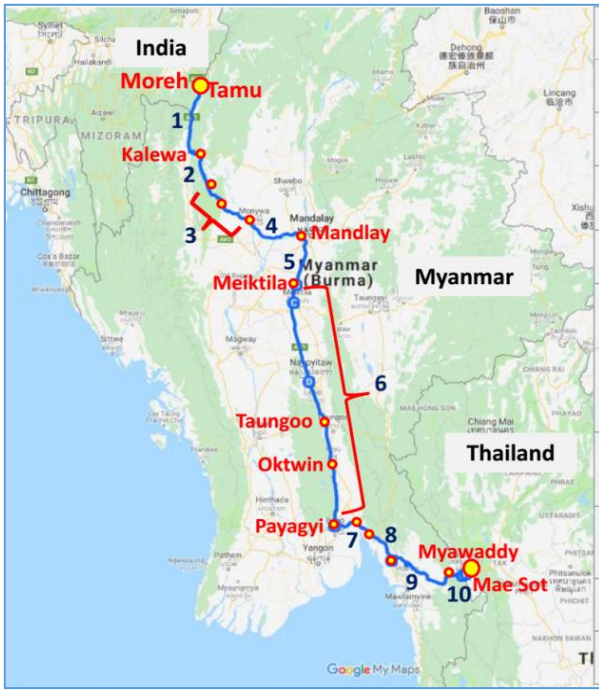
The TLH project involves the construction of a 1,360 km highway connecting Moreh in Manipur to Mae Sot in Thailand through Myanmar. The cost of construction is estimated at US$140 million. The TLH is further proposed to be extended to Cambodia, the Lao PDR, and Viet Nam.

(2) India–Myanmar Friendship Highway

The India–Myanmar Friendship Highway (IMFH), or the Tamu–Kalewa–Kalemyo Road, was inaugurated in 2001. The road, built entirely by India, was a gift to Myanmar and is part of the Asian Highway. The IMFH was built by the Border Roads Organisation (BRO) and was transferred to the Government of Myanmar in 2009. The related agreements between India and Myanmar suggest that India would widen and repave the existing roads in the area, while Myanmar would upgrade the single-lane bridges along the route. Myanmar, however, was unable to carry out the upgradation work. In 2012, India agreed to repave the existing highway and upgrade all 70 weak or old bridges along the road, of which only one has been repaired by Myanmar till date. The remaining 69 bridges in the Tamu–Kyigone–Kalewa section (149.70 km) of the highway and upgrading of the Kalewa–Yargyi section (120.74 km) are being undertaken by India. This is a part of the TLH, which is likely to be completed by May 2021. The route of the TLH is as follows (Figure 5.4): Moreh (India)–Tamu–Kalewa–Yargyi–Monywa–Mandalay–Meiktila Bypass–Taungoo–Oktwin–Payagyi–Theinzayat–Thaton–Hpa-An–Kawkareik–Myawaddy–Mae Sot.[10]

[10] The alignment is based on the information provided by the Ministry of External Affairs, the Government of India, during the course of the study.

Figure 5.4. India–Myanmar–Thailand Trilateral Highway Route



Route	Stretch	Status
1	Moreh-Tamu-Kalewa	2017
2	Kalewa-Yagyi	2021
3	Yagyi-Chaungma-Monywa	201?
4	Monywa-Mandalay	201?
5	Mandalay-Meiktila bypass	2010
6	Meiktila bypass-Taungoo-Oktwin-Payagyi	2010
7	Payagyi- Thein Za Yat - Thaton	2017
8	Thaton-Mawlamyine-Kawkareik	2020
9	Kawkareik-Myawaddy	2015
10	Myawaddy-Mae Sot	2018

Source: Drawn by ASEAN–India Centre, Research and Information System for Developing Countries (AIC–RIS).

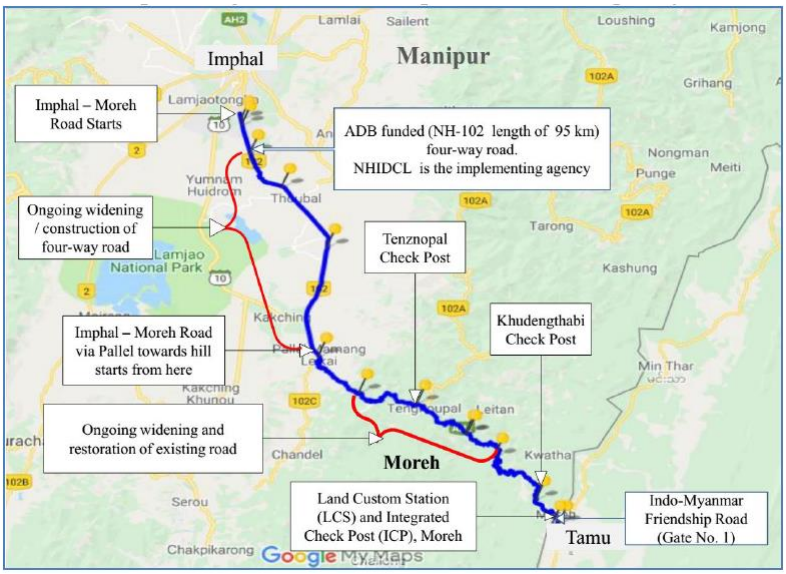
The National Highway Authority of India (NHAI) has issued a letter of award to the Punj Lloyd and Varaha Infra joint venture for the construction of a two-lane highway in the Kalewa-Yargyi section of the TLH. The 122 km road is estimated to cost Rs11.20 billion. The project is funded by the Ministry of External Affairs, Government of India. Of a total road length of 122 km, about 20–25 km of the road fall in the hilly terrain. The project was commenced on 28 May 2018 and is expected to be completed by 2021. The contractors under NHAI supervision will carry on the maintenance of the road until 2028. So far, they have made 11% progress in the project.[11] The project is primarily focused on improving the curves, which would reduce the length by 50 km and also reduce the travel time by 1–2 hours from the present 6–7 hours and also increase the speed of trucks by 80 km per hour.

[11] As of May 2019, based on RIS Survey (2019).

(3) Imphal–Moreh Highway

The Government of India and the Asian Development Bank (ADB) signed a US$125.2 million loan, which has been used for the upgrade of roads in India's Northeast. National Highway and Infrastructure Development Corporation Limited (NHIDCL) is implementing the ADB-funded highway project between Imphal and Moreh (Figure 5.5). The total estimated cost is Rs11.88 billion. The loan agreement amount between ADB and the Government of India is around US$160 million. The length of the road (NH-102, which used to be known as NH-31) is 110 km. The construction of the first phase (Point 330 to Point 350) is under the tendering process. The construction of the second phase (Point 350 to Point 395) is ongoing. For the construction of the third phase (Point 395–Moreh Border), the loan has not yet been sanctioned. The construction of the second phase is likely to be completed by October 2021, whereas the first and third phases are likely to be completed by 2022. The Gurgaon-based GR Infrastructure has been awarded the construction of the second phase of the highway.

Figure 5.5. Project Status of the Imphal–Moreh Highway



Source: RIS Survey (2019).

There are issues regarding the ongoing construction of the project; for example, land acquisition in some of the places between Imphal and Pallel. Another example is the old bridge (known as Lilong Bridge), which is a single lane at Lilong Bazar that is heavily congested and has to be reconstructed. Similarly, the bridge at Thoubal (Thoubal Bridge) and Wangjing is too narrow and

has to be widened. The second phase of the ADB project starts from this location (Figure 5.5). The road construction under the ADB project from Kaching to Pallel Bazaar is ongoing. The hilly terrain starts from Pallel, while the bridge at Pallel Bazaar needs replacement. Also, on the hill between Pallel and Moreh, there used to be seven check posts, but now there are only two check posts in operation. The first vehicle check post is located at Tengnoupal, and the second check post is located at Khudengthabi. At the second check post, Assam Rifles has introduced a cargo scanner for goods to be imported through Moreh and transported to Imphal. Under this project, there are plans to build a 2 km bypass in Moreh to avoid the congested part of the Moreh town. The bypass will connect NH-102 straight to the India–Myanmar Friendship Bridge. The Imphal–Moreh road connects the Integrated Check Post (ICP) at Moreh, which is close to the Indo–Myanmar Friendship Road at Gate No. 1. The current speed of vehicles is 40 km in the valley and 20 km on the hill. Once the project is completed, the speed will be enhanced to 100 km in the valley and 65 km on the hill for passenger vehicles.

(4) Road Networks between Imphal and Moreh to Major Growth Centres in the NER

In the last 3–4 years, several road connectivity projects have been taken up in the NER under the Bharatmala project and economic corridor schemes. Under the Bharatmala Pariyojana, about 5,300 km of road will be developed as border roads and international corridors. Of this, about 2,000 km has been implemented under Phase 1 from October 2017 onwards. It is expected that by 2023, almost 80%–90% of the road connectivity in NER under Bharatmala Pariyojana would be completed. It is important to consider the internal connectivity of the northeast to the border town of Moreh in Manipur. Moreh is connected with Imphal by NH-39. National Highways 36, 37, and 39 connect Imphal with Guwahati, which is the main hub of the NER (Figure 5.6). The journey from Imphal to Guwahati at present takes about 12 hours, with many sections of the road being in disrepair. Another option for travelling from Imphal to Guwahati via Haflong is also being considered, which is a shorter but more difficult route. Suggestions for upgrading the Imphal–Silchar road have also been considered. In fact, a Detailed Project Report (DPR) is under preparation for road connectivity between Imphal and Dimapur. Road connectivity between Imphal and Silchar is good, and the expansion of two small bridges and one large bridge is ongoing. Internal connectivity is vital for boosting bilateral links, and considerable attention should be given to this by both the state and central governments.

Figure 5.6. Growth Centres in the NER

Source: National Highways and Infrastructure Development Corporation (NHIDCL).

The National Highways and Infrastructure Development Corporation (NHIDCL) has been awarded to complete the construction and maintenance of the National Highways in the NER. NHIDCL is also working to improve the roads between Imphal–Kohima and Imphal–Jiribam. Additionally, NHIDCL is implementing an Aizawl–Tuipang (NH 54) road connectivity project of about Rs67.21 billion, which is being funded by the Japan International Cooperation Agency (JICA). The project has realigned the existing 250 km and stretches for about 380 km in length. The project was approved in March 2019 and is proposed to be carried out through eight packages. So far, two packages have been signed, and the rest of the packages have been initiated for signing. The project is implemented under the Engineering Procurement Construction (EPC) mode through different contractors.[12] There is a possibility of connecting the TLH with the Kaladan Project.

[12] Letter of Agreement (LoA) issued for seven phases in EPC mode: one package for Gammon; three packages for ABCI; two packages for Bhartya; and one package for National Project Construction and Cooperation (NPCC).

Imphal can be connected with Aizawl by road via Churachandpur and Tipaimukh in Manipur.

There are many challenges: (i) land acquisition and encroachment are a main challenge for development and highways. Although land can be acquired by NHIDCL, it requires the support of the respective state governments to take over the land for the road construction project; (ii) unlawful activities of insurgent groups, particularly between Imphal and Jiribam and between Imphal and Dimapur; (iii) high replacement costs of standing structures/horticulture/forest land; and (iv) a lack of cooperation from state line departments.

(5) Imphal–Mandalay Bus Service

The proposed bus service is expected to take 14 hours to cover the 579 km distance between Imphal and Mandalay. The initial proposal for the bus service was submitted to the Ministry of Road Transport and Highways and the Ministry of Development of North Eastern Region in 2009. The Imphal–Moreh section of the road is about 110 km, while the section from Moreh to Mandalay is about 469 km. The memorandum of understanding (MoU) for the bus service between India and Myanmar was amended in 2012, and in 2014 a technical committee meeting was held for the second time. A joint special team by members of both countries was formed and it was found that the road between Imphal to Moreh is in good condition, but the route from Moreh to Yargyi is not in good condition. There are three routes proposed for the bus service, of which the second route is not usable during the rainy season, while in the first route, there are about 70 bridges in the Yargyi–Kalewa section that need repair. In 2014, Route 1 from the three options was finalised, and the service was expected to begin in 2019 (Chaudhury and Basu, 2015). Finally, an MoU was signed between Yangon-based Shwemandalar Express and Imphal-based Seven Sisters Holiday on 14 February 2020 for the commencement of a bus service between the two neighbouring countries by April 2020 (Myanmar Times 2020). According to the MoU, the Shwe Mandalar Express will provide services from Mandalay to the border town of Tamu in Chin State, and Seven Sister Holidays will provide services from Tamu to Moreh and Imphal. The journey from Mandalay to Tamu will take about 11 hours, while the journey from Tamu to Imphal may take about 2 hours, with about an hour for security clearances at Tamu–Moreh, making a total 14-hour trip. Once the road repairs are completed in India and Myanmar, the trip from Mandalay to Imphal will take only 5 hours. Tour operators in Imphal have suggested that following Dhaka–Kolkata or Agartala–Kolkata bus services, immigration and check-in should

be done on an end-to-end basis, which will drastically reduce the commuting time between the two cities.

(6) Rail Connectivity

Establishing rail connectivity with Myanmar is important, both in terms of increasing bilateral commerce and improving people-to-people contact. Rail links will significantly reduce journey times, especially for longer-distance cargo and passengers. With India, a study for a rail link from Jiribam in Manipur to Mandalay in Myanmar was conducted by RITES in 2005. According to this study, the total length of the rail line from Jiribam to Mandalay is 885.4 km, out of which the length of the Jiribam–Imphal–Moreh route is 219 km and the length of the Tamu–Kalay route is 127.4 km. This rail project is part of the southern corridor of the Trans-Asian Railway network.

Within India, there is no rail link between Jiribam and Moreh, while on the Myanmar side there is also no link between Tamu and Kalay. Connectivity between these points in the respective countries would contribute to increasing communication and commerce. The Jiribam–Tupul–Imphal broad gauge line is expected to be completed by 2020. The route involves several minor and major bridges and tunnels, of which a special feature is the construction of Bridge No. 164, which has a pier height of 141 metres and is the tallest girder rail bridge in the world (Financial Express, 2018). An initial survey of a broad gauge rail link between Imphal and Moreh has already been completed by the North East Frontier Railway (Chaudhury and Basu, 2015). International bodies like the JICA and the Korea International Cooperation Agency have shown interest in improving the railway system in Myanmar.

(7) Air Connectivity

Air connectivity between India and Myanmar needs to be improved to promote religious and medical tourism. For instance, people from Myanmar are interested to visit Bodh Gaya. The present air connectivity is a direct flight from Kolkata to Yangon and between New Delhi to Yangon via Gaya. During the months of October–March every year, Myanmar Airways and another privately operated service, Myanmar Golden Airlines, operate flights three times a week from Yangon to Gaya for the Buddhist pilgrimage in Myanmar (Myanmar Times, 2019). Myanmar Airlines is slated to begin a new flight on the Kolkata–Bodh Gaya–Yangon route, mainly targeting religious tourism. Meanwhile, the Indian Diaspora is concentrated mainly in Yangon and Mandalay and employed in various fields like education, trade and commerce, and civil services.

Many families are engaged in the trading business, and having families in India and Myanmar. Indigo has recently started daily flights between Kolkata and Yangon.

Air connectivity will play an important role in fostering multi-modal connectivity in the region. According to an RIS Study, 'with Imphal now becoming an international airport, it will be important to include it as an option in the Bilateral Air Services Agreement to enable airline companies to consider operating flights between Imphal and Mandalay. Likewise, by the time the Zokhawthar border trade point begins to show greater levels of activity and the Rhi-Tiddim road gets going, flights from Aizawl to Kalemyo and Mandalay would help in further promoting trade. It has already been indicated that the Myanmar government would be further strengthening the Kalemyo airport' (RIS, 2014: 42).

There is no flight between Imphal and Mandalay or Imphal and Yangon. There are nine flights between Mandalay and Yangon. It is possible to connect Imphal with Mandalay and Imphal with Yangon by air, and there was a trial run in the past. Air KBZ and KB Enterprises are likely to start flights between Imphal and Mandalay. The Government of India may consider extending E-visas to Myanmar citizens for coming to India through Moreh and Tamu. In addition, a visa collection centre may be set up at Moreh and Tamu. Direct air connectivity between Imphal and Mandalay is likely to be started soon.

(8) Digital Connectivity

Myanmar has set up cross-border fibre optic links with many of its neighbouring countries, including India. The first cross-border fibre optic link between India and Myanmar was set up in February 2009, running from Moreh in Manipur to Mandalay in Myanmar, for a distance of 500 km. The 640 km link passes through Tamu, Kampatwa, Kyi Gone, Shwebo, Monywa, and Sagaing. The optical fibre link is a high-speed broadband link for voice and data transmission (Global Times, 2017).

5.3. Developmental Impacts of the TLH on the NER India

(1) Benefitting from Trade-Development Linkages

The extension of the TLH to Cambodia, the Lao PDR, and Viet Nam may further strengthen road connectivity between the NER states and Southeast Asian countries. The operationalisation of the TLH would have immediate impacts on businesses and commercial activities in the Moreh–Tamu area at the India–Myanmar border as spin-off effects of the improved connectivity, and, hence, lead to the faster transportation of goods between Moreh and Imphal on the Indian side of the border and subsequently to the Myanmar side. As a result of the reduced cost of transportation and faster processing of documents at the ICP Moreh, Indian exports to Myanmar, Thailand, and other countries are likely to increase. Increased trade between India and the Southeast Asian countries would propel economic activities along the TLH. The trade-induced rise in business in Moreh–Imphal has the strong potential to generate a centripetal force around Imphal and attract exports from other parts of the NER, which is possible because of notable progress in rail connectivity in the NER connecting all the capitals of the NER states. This spurt in commercial activity would then require improved supply chains and the strengthening of existing corridors in the region. Moreh could become a critical node in the growth corridor that has been emerging with the TLH and its possible extension to Mekong countries.

(2) Leveraging the Growth Corridor Advantage

The larger developmental gains from the TLH and its extension to the Mekong subregion can be visualised from the growth corridor perspective. In a growth corridor, connectivity facilitates the integration of urban centres, growth centres, and nodes with the hinterland and less-developed areas. Connectivity-led integration in the form of a growth corridor has the potential to expand economic activities along the Moreh–Imphal zone. Very often, local industrialisation, especially for small and medium-sized enterprises (SMEs), is affected due to a lack of technical know-how, uncertainty of markets, and lack of scale. Rural markets in most cases are fragmented and, thereby, offer little scope for growth or diversification of local businesses. Therefore, improved and faster connectivity may unleash new dynamism in the rural economy in the NER. It may generate wider economic benefits through new enterprises and jobs and greater inclusion. However, to gain such welfare, countries have to invest in transport, agriculture, tourism, energy, urban development, and other multi-sector/border zone development.

(3) Gaining from Trade-Industry Linkages

The most immediate impact anticipated from the operationalisation of the TLH is the rise in bilateral trade amongst the partner countries. Once export possibilities increase, it would be cost effective for the exporters in Manipur and other states in the NER to use the land corridor to trade with Myanmar and other Southeast Asian countries. The Sagaing Province of Myanmar is a big market for Indian goods. Along with higher exports, the TLH may generate a conducive business environment for the growth of industries in the NER. This is based on the logic that local firms in the NER would not only be able to export to Southeast Asian countries and beyond without the hassle of transporting goods to ports and waiting for formalities and customs clearance but also to source raw materials and intermediates from the neighbouring countries at cheaper prices. In view of such a scenario, a strong case for trade-induced industrialisation is being visualised. To assess the potential of the industrialisation that could be attributed to TLH, it is imperative to examine the trends and patterns in industrialisation in the NER states.

(4) Sectors Offering Business Opportunities

The sector of significance for the NER states is the food processing industry. The NER is known for agriculture and horticulture crops, including organic farming. In recent years, the region has witnessed significant growth in the production of fruits, spices, and plantation crops. Amongst the NER states, Assam and Tripura have more units in food processing than other states in the NER (NEC, 2019). There are several challenges that the food processing industries face in the NER, including a lack of transportation, inadequate cold storage facilities, lack of post-harvest technologies and processing of farm produce, lack of market access, and other factors (Rais et al., 2014; Kathuria and Mathur, 2019).

The central and state governments have implemented several schemes for the promotion and development of food processing industries in the NER. The schemes cover an entire spectrum of issues, such as food parks, cold chain, value addition and preservation infrastructure, food testing laboratories, research and development, and the modernisation of food processing industries. The number of projects sanctioned under the two schemes, the National Mission on Food Processing and Technology Upgradation/ Modernization of Food Processing Industries schemes, are higher than other schemes. For instance, there are hardly a few projects under the Mega Food Parks scheme, Integrated Cold Chain, Value Addition & Preservation Infrastructure,

and Research & Development for all the northeastern states except for 19 projects for Assam under the Research & Development scheme (NEC, 2019).

In terms of the potential for industrial development, the NER is well-endowed with natural resources. In particular, the rich mineral resources of the NER states can be harnessed properly for planned industrial development in the region. The mineral resources in the NER include coal, limestone, petroleum, natural gas, chromite, zinc, lead, copper, iron ore, and others.

In view of a possible spurt in economic activity after the implementation of the TLH extension, a number of steps can be taken to promote industrial development in the NER. Manipur State may like to develop special economic zones (SEZs) for timber, food processing, and other sectors. For the ease of payments and settlement in bilateral trade, normal banking facilities between Myanmar and Manipur should be opened. Some of the sectors that have high business potential in Manipur are health care, education, tourism, infrastructure development, construction, and food processing.

The business opportunities are likely to trickle down to the entire NER through better connectivity and business marketing. There is a possibility of connecting the TLH with the Kaladan Project and Imphal with Aizawl by road via Churachandpur and Tipaimukh in Manipur. This would perhaps boost industrial development in the neighbouring states, such as Mizoram, Assam, and Tripura.

In addition, the industrial units in and around Imphal have witnessed significant growth and have the potential to grow further. The industrial units broadly cover sectors such as garment-making including fabric, tailoring, embroidery, papad making, PVC pipe manufacturing, electrical transformer manufacturing, plastics products, drinking water, bread, and so on. Although the industries department in Manipur has provided industrial sheds in the designated industrial estates, local firms face a number of challenges in expanding their businesses, which include a lack of on-time availability of working capital, uncertainty in the delivery of raw materials and finished goods, power supply interruptions, logistics problems, and insurgency.

(5) Tourism Opportunities

The geographical location of the NER states surrounded by the Himalayas and vast natural flora and fauna makes the region attractive to tourists, both domestic and foreign visitors. There are numerous tourist locations spread over the eight different states in the NER. Some of the major tourist attractions in the region are listed in Table 5.2. Tourism is also a key income-generating activity in the region, and it offers employment and people-to-people linkages. The completion of the TLH and the strengthening of air connectivity with neighbouring countries will certainly expand tourism in Manipur and other neighbouring states in the NER. Amongst the factors that are likely to accelerate tourist flows is the ease of travel between the border towns of both India and Myanmar, which would open greater people-to-people interactions and attract tourists from Thailand, Viet Nam, Cambodia, and the Lao PDR.

The operationalisation of the TLH and its extension to Cambodia, the Lao PDR, and Viet Nam would yield promising results for Indian tourism. Besides the TLH, there has been remarkable progress in road and rail connectivity as a result of the successful completion of road projects under the Bharatmala economic corridor programme and the railway projects connecting the state capitals in NER. In addition, the Ministry of Tourism, Government of India, introduced two new schemes in 2014–2015 called the Pilgrimage Rejuvenation and Spiritual Augmentation Drive (PRASAD) and Swadesh Darshan i.e. Integrated Development of Theme-Based Tourist Circuits. Kamakhya in Assam has been identified as a project under the PRASAD scheme. Likewise, the North-East India Circuit is one of the 12 thematic circuits that have been identified under the Swadesh Darshan scheme. The Government of India also offers certain incentives to promote tourism in the NER. These include the provision of complimentary space to the NER states in India Pavilions at major international travel fairs and exhibitions, 100% financial assistance to organising fairs and festivals, and special campaigns on the NER on TV channels to promote tourism in the region. Two tourist circuits that link Manipur with other states in the NER are Guwahati–Kaziranga–Kohima–Imphal–Moreh–Guwahati and Kolkata–Imphal–Moreh–Kolkata. The initial effects of the TLH will be generated in Manipur and, subsequently, other tourist circuits in the region would either bring tourists to Manipur from other parts of the region through India–Southeast Asia route via Moreh, or would increase the movement of Southeast Asian tourists to the NER and other parts of India through the Moreh–Tamu border. The National

Highways and Infrastructure Development Corporation (NHIDCL) has been improving the roads between Imphal to Kohima and Imphal to Jiribam that connect different places in the NER.

Table 5.2. Major Tourist Attractions in the NER

State	Major Tourist Places
Arunachal Pradesh	Tawang, Dirang, Bomdila, Tipi, Itanagar, Malinithan, Likabali, Pasighat, Along, Tezu, Miao, Roing, Daporijo, Namdapha, Bhismaknagar Kund and Khonsa
Assam	Kamakhya Temple, Umananda, Navagraha, Basisth Ashram, Dolgobinda, Gandhi Mandap, State Zoo, State Museum, Sukreswar Temple, in Guwahati, Kaziranga National Park, Manas, Orang, Sibasagar, Tezpur, Bhalukpung, Hajo, Batadrava
Manipur	Imphal, Bishnupur, Loktak Lake, Sirori Hills, Keibul Lamjao National Park
Meghalaya	Shillong, Jowai, Cherrapunji
Mizoram	Aizawl, Champhai, Tamdil, Thenzawl
Nagaland	Kohima, Dimapur, Khonoma, Dzukou Valley, Dzulekie, Japfu Peak, Tseminyu, Longkhum, Ungmaveda Peak, Shilloi LakeMount Tostu
Sikkim	Gangtok, Bakhim, Yamthang, Dubdi, Dzongri, Varsey, Tashiding
Tripura	Agartala, Old Agartala, Tripura Sundari Temple

Source: NEDFi Databank.

In the context of the TLH, several steps are warranted to address the connectivity challenges with an aim to promote tourism. A motor vehicle agreement (MVA) between India, Myanmar, and Thailand should be signed at the earliest. India may consider providing on-arrival visas at Moreh, which could facilitate tourism between India and Myanmar, and between India and Southeast Asian countries. Visa collection centres should be set up at Moreh (India) and Tamu (Myanmar). There have been strong historical and cultural linkages between Manipur and the Sagaing province of Myanmar. Both sides share a geographical border, and the people of Sagaing province visit Manipur for health care, tourism, and trade, and vice versa. People from Myanmar also participate in sports festivals on the Manipur side every year. Regular bus services (private) have started from Tamu to Mandalay, Yangon and Naypyidaw in Myanmar, which will pick up in demand once the TLH is completed. Completion of the TLH will also resume the point-to-point bus services between the two countries, such as the services for Imphal and Mandalay or Yangon and Imphal through the Moreh border. In particular, people from the Sagaing region can travel to Bodh Gaya via Imphal. Further travel to Kolkata and Patna will be possible either by road or

by air. Therefore, Buddhist pilgrimage will receive a fillip with the completion of TLH and the MVA between the three countries.

Medical tourism between India and Myanmar is another services sector that offers immense business opportunities for the NER. Today, a significant number of patients from Myanmar visit Imphal for the treatment of their health ailments. For instance, about 600 patients from Myanmar have been treated at the Shija Hospital in Imphal in the past few years. Medical tourism will expand further once the TLH comes into operation.

Despite the number of initiatives taken by the governments, there are several callenges to promoting tourism activities in the NER. Amongst others, a lack of proper infrastructure, lack of road-side amenities, lack of comprehensive marketing and promotion, an uncertain law and order situation due to insurgency, negative travel advisories, and blockades affect tourism in the NER.

(6) Employment Generation

The creation of adequate employment opportunities, including self-employment as well as wage-employment, is being viewed as the most tangible and desirable output of the TLH and related projects. As argued above, trade at the India–Myanmar border at Moreh would act as a regional gateway for higher trade, investment, and other forms of economic engagement between the NER states and Southeast Asia. The growth corridor impact of the TLH in NER is likely to yield positive results drawing on the success stories of the economic corridors of the GMS, SASEC, and CAREC countries and the Indonesia–Malaysia–Thailand (IMT) Growth Triangle and others. Although the size of the employment impact cannot be measured at this stage, the historical trends in employment in the NER may shed more light on the likely impact of TLH-inspired rise in economic activities and/or the nature of government intervention required to activate the regional value chains for job creation.

(7) Education and Skill Development

The TLH will certainly raise the demand for higher education and better-skilled resources. The issues of industrialisation, trade, and development in the NER require a comprehensive approach to addressing education and skill development. Skilling is a big challenge in the NER. The short-term response to opening the TLH would be mostly demand-side measures. For instance, given the current and envisaged trade liberalisation, any possibility of an export rise can be met with higher production utilising existing industrial capacity and human resources. However, in the long run, supply-side measures would matter the most. Two important areas need special attention in this regard. Formal education, especially technical and vocational education, would ensure a sustained flow of a trained workforce in different industrial fields. At the same time, focus on skilling both for fresh candidates and for the augmentation of the existing workforce is vital.

Skill development may exclusively focus on food processing, garment manufacturing, small and village industries, tourism, trading of goods and services, and construction activities, amongst others. Women self-help groups can be suitably employed in the mission of skilling and contributing to income-generating activities. As part of long-term entrepreneurship development, technical and management graduates from the NER states may be offered technical guidance and credit support to explore the establishment of SMEs.

5.4. Dealing with Challenges and Recommendations

(1) Improvement of Road Infrastructure, Completion of the TLH, and the Replacement of 69 Bridges

The road between Imphal and Moreh should be made six-lane. In particular, the Moreh–Pallel section of the road has to be improved. The road in the Monwya–Yargyi section in Myanmar should widened and be made four-lane. Meanwhile, road conditions in Manipur, particularly those connecting neighbouring countries, should be made high quality. The timely completion of the TLH and the replacement of 69 bridges is critical to the NER's linkages with Southeast Asia and vice versa. At present, the 122 km road of the TLH is under construction under the supervision of the NHAI. The project was commenced on 28 May 2018 and is expected to be completed by May 2021. The replacement of 69 weak or old bridges along the Tamu–Kyigone–

Kalewa road section of the TLH was suspended due to a legal case at the Manipur High Court. The Government of India won the verdict in October 2019 and the work for the rehabilitation of the bridges is about to start. Without the completion of the bridges, the TLH cannot be made operational for cargo vehicles and passenger bus services between India and Myanmar.

(2) Completion of the Negotiation of the Trilateral Motor Vehicle Agreement

Progress on the negotiation of the Motor Vehicle Agreement (MVA) between India, Myanmar, and Thailand for the TLH has been slow. Given that all the three countries have ratified the WTO Trade Facilitation Agreement (WTO–TFA), TLH countries may resume the MVA negotiation at the earliest and complete the negotiation before the TLH comes into operation. In many areas, the WTO–TFA and TLH–MVA are interrelated. Myanmar's progress in implementing the WTO–TFA has been slow. Myanmar needs technical assistance and capacity building while implementing the WTO–FTA. Both India and Thailand may offer adequate technical assistance and capacity building to Myanmar while implementing the TLH–MVA.

(3) Promotion of Tourism

Myanmar and Manipur have strong cultural and civilizational links. People from Myanmar, particularly from the Sagaing region, would like to travel to Bodh Gaya via Imphal. They can come in groups by road to Imphal and then fly to Bodh Gaya via Kolkata or Patna. Once the bus service between Mandalay to Imphal is started, tourism will expand drastically.

For the case of health tourism, about 600 patients from Myanmar have been treated in Imphal's Shija Hospital over the last few years. Shija Hospital has been receiving patients from Mandalay and several parts of Myanmar, and the hospital has conducted health missions in Myanmar. In addition, jointly with Monywa General Hospital in Myanmar, it has conducted 179 operations. Through this mission, several surgeons and nurses were also trained. Health care facilities may be developed at Moreh. Tamu General Hospital in Myanmar provides basic health care facilities. Therefore, the development of a super-specialty hospital in Moreh will promote health services between the two countries. In this case, patients will not need to go to Imphal for treatment. At the moment, visa collection takes 10–15 days. To facilitate health services, E-visas at Moreh border should be extended to Myanmar citizens for entering through the Moreh and Tamu border.

More hotel rooms should be added as we promote tourism. At the moment, Manipur does not have and five-star hotels, whereas Manipur has high tourism prospects in the medium-to-high range. Most of the foreign tourists in Manipur are from Japan and the United Kingdom.

Manipur does not have any economic zones. Manipur state may consider developing an SEZ for health and education, etc. However, there are many challenges, such as bad road conditions and lack of infrastructure, particularly of roadside amenities, which are very poor in quality and limited in number. In addition, the lack of comprehensive marketing and promotion, the law and order situation, negative travel advisories, *bandhs*[13] and blockades, and a low image in the market are also negatively affecting tourism activities. These are significant challenges that must be addressed while promoting tourism in NER.

The Manipur government is planning to set up an empowered team to facilitate trade, people-to-people contact, and economic interactions between Manipur and the Myanmar government under the overall guidance of the Government of India under its Act East Policy.

(4) Improvement of Border Infrastructure

There are several challenges associated with Moreh LCS and the newly opened ICP, and some of them include a shortage of staff, lack of 24/7 electricity, absence of good quality internet, absence of accommodation for officials, and other social infrastructure. During the time of the field survey, the cargo terminal of Moreh ICP was not operational. The Friendship Bridge near to Gate 1 at the Moreh–Tamu border has to be redeveloped so that cargo vehicles use the bridge and direct shipments through Moreh ICP. In addition, the number of good hotels and homestay facilities at the Moreh border should be increased. India may consider building a guest house for Buddhist travellers at Moreh.

Passengers and traders face harassment at the border, which must be stopped. A full-body cargo scanner (for containers) should be introduced at the Moreh ICP for export and import consignments. At the moment, there has been no container movement at the Moreh–Tamu border between the two countries. In addition, the Moreh border requires facilities such as border fencing, additional warehousing facilities for refrigerated goods, cargo vehicle yards,

[13] A *bandh* is a form of political protest in India, which is similar to a general strike.

warehouses for seized items, plant and quarantine facilities, and a controlling office for drugs and narcotics, etc.

Land acquisition and encroachment have been major challenges for the development and construction of highways. Additionally, local businesses and people face unlawful activities from insurgent groups, particularly between Imphal and Jiribam and between Imphal and Dimapur.

(5) Ease of Travel between Moreh and Imphal

The Myanmar government has allowed third-country nationals to move through the Tamu border, which has led to the facilitation of passengers' movements between the two countries through the Moreh and Tamu borders. After the clearance of immigration at Moreh ICP, incoming nationals (mostly from Myanmar) face multiple security checks between Moreh and Imphal, which cause time delays and costs. The travel of foreign nationals should be made comfortable. Some of the people, particularly business people, should not face such trouble, and they should be handled agreeably. Besides hotels and other amenities at Moreh, there should be adequate transportation facilities between Moreh and Imphal.

(6) Safety and Security and Smart Borders

With the opening of the TLH, there are concerns with issues of illegal immigration, informal trade, and terrorism. Therefore, both India and Myanmar should introduce more scrutiny at the Moreh–Tamu border as well as other borders connecting the two countries. There is no denying that the border dispute between India and Myanmar has been forcing illicit trade and transportation to happen, and this needs to be resolved before the TLH becomes operational. The border at Moreh should be fenced with watch towers, night-vision cameras, and radar cameras so that trade can take place with sufficient security and safety. The completion of the Imphal–Moreh road will help better track the safety and security of vehicles with the help of digital technology, such as RFID. Electronic data interchange should also be introduced at Moreh customs, and human resources should be scaled up at Moreh ICP.

(7) Removing the Informality in Trade at the Border

Border agencies should ensure that illegal imports passing through Moreh or Tamu do not take place. Once a formal payment system is introduced, the current arrangement of informal payment at the borders will disappear. In parallel, all illegal trade routes at the border have to be

closed, such as through fencing of the border of introducing border passes with the help of new technologies. The government's support is needed for the promotion and capacity building of human resources who will be deployed to check for illegal payments and trade. Large informal trade (from neighbouring countries) has been negating the growth of industrial activities in Manipur and other parts of the NER. Formal trade at the Moreh–Tamu border is crucial for promoting industrialisation in the NER.

(8) Supporting SMEs in the Border Area

Trade is mostly handled at Moreh by SMEs. Supporting the SMEs will then lead to involving local youth and ethnic communities. Innovative measure, such as Mudra loans of about US$7,000 per individual that are currently extended to SMEs should be continued to help expand activity in the local markets. The Government of India may also consider extending transport subsidies to the exporters located in Imphal and Moreh, which would help them to compete with bigger exporters who are not from the region.

(9) Opening of International Flights from Imphal

There are no flights between Imphal and Mandalay or Imphal and Yangon, whereas there are several flights between Mandalay and Yangon. Connecting Imphal with Mandalay and Imphal with Yangon will pave the way for enhanced tourism and trade. Myanmar's Air KBZ and Imphal-based KB Enterprise are considering opening a direct flight between Imphal and Mandalay. If air connectivity is allowed, we need to make sure that flights from Imphal go straight to Mandalay and not via Aizawl. In addition, Imphal may also be connected with Bodh Gaya by direct flights. The airport in Imphal has to be upgraded to accommodate international flights.

(10) Streamlining Banking Facilities

Normal banking facilities between Myanmar and Manipur should be opened. Presently, all transactions between Indian and Myanmar traders are in cash. Both countries need to move from informal payments to formal payments through bank transfers. India can consider special incentives and training programmes on formal trade procedures for local traders and youths.

(11) Maintaining Law and Order

Law and order is a critical issue for peace and prosperity in the region. Problems faced by local traders and problems faced by manufacturers are different. Trade and violence cannot go

together. The movement of vehicles between Moreh and Dimapur and Moreh and Silchar with high security is very much needed. Moreh town and Imphal city have to be saved from the occurrences of bandhs (general strikes), theft, violence, and disturbances of the peace.

(12) Branding

Massive image building and awareness campaigns are needed. As Manipur is at the border of Myanmar and in view of the rising flow of Myanmar nationals to Manipur, The Government of Myanmar may like to open a consul office in Imphal. Both the state and central governments must invest in promotion, publicity, and marketing for the NER states abroad. In addition, roadshows, online and electronic advertisements, and participation in international trade fares and travel meetings, etc. are required. The NER states may appoint brand ambassadors and consider targeted approaches for domestic and international tourists.

(13) Food Testing Laboratory at Moreh

All the laboratories in the NER under the Food Safety and Standards Authority of India should be certified by the National Accreditation Board for Testing and Calibration, which does not exist in Imphal so far. At present, the food testing activities are managed by the Manipur State Food Safety Department. A micro-biology section has not yet been developed at the food testing laboratory in Imphal. A small office was opened in Moreh in December 2018 to check chemicals in processed food items, but it closed down later. In view of international trade at Moreh and Tamu, food safety must be strengthened, and food testing laboratories should be reopened with adequate capacity and human resources.

(14) Narrowing the Infrastructure Gap between Moreh and Tamu

Moreh has set-up an ICP, and several border improvement projects, both behind and at the border, are ongoing or proposed. Trade infrastructure at Moreh has witnessed drastic improvements in recent years, whereas the same in Tamu is missing. Table 5.3 presents the comparison of facilities between the two border posts. Current infrastructure at Moreh and Tamu is not adequately equipped to handle the future trade that we envisage when the TLH comes in operation. To meet such a target, priority should be to narrow down the infrastructure gap between Moreh and Tamu. Some of the projects worth considering are ratifying standard operating procedures for the handling of goods and passengers, inter-operability of customs EDI systems, and handling of container cargoes, etc. at the border.

(15) Building the Partnership between the NER and Myanmar

There have been strong and steady economic linkages between Manipur and Myanmar's Sagaing province. Not only do they share a border but the people of Sagaing province also visit Manipur for health care, tourism, and trade. Some of the sectors offer high business potential, such as in health care, tourism, education, infrastructure development, construction, and food processing. Similarly, the NER's Mizoram, Nagaland, Tripura, and West Bengal states have cultural and economic linkages with Myanmar. Strengthening the NER–Myanmar partnership will then not only reinforce the bilateral foundation but also scale the relations to new heights. A new study may be conducted on the state-province level partnership between India, Thailand, and Myanmar.

Table 5.3. Comparison of Border Infrastructure Facilities at Moreh and Tamu

No.	Facilities	Moreh	Tamu
1	Warehousing	Yes, ongoing capacity of 800 square meter	Yes, two warehouses capacity of 855 square meter and 485 square meter, respectively*
2	Cold storage	Yes*	No
3	Bank	Yes	Yes
4	Foreign Exchange Facility	No	Yes
5	Weighing Bridge	Yes	Yes
6	Plant Quarantine	Yes*	Yes*
7	Food Testing Lab	Yes*	No
8	Internet Bandwidth	Moderate	
9	Human Resources	At ICP: 1 regular post and 13 people are presently working as contractual basis. At LCS: 3 inspectors, 2 havildars and 1 superintendant	8 custom officials and 1 supervisor
10	Security	Yes	Yes
11	Electricity	Yes	Yes
12	Medical facility	No	Yes
13	Public conveniences	Yes	Yes
14	Parking Space	Yes	Yes
15	Weighbridge	Yes	Yes
16	Refer containers handling	Yes*	No
17	Hotel	Yes	No
18	Immigration	Yes	Yes
19	Customs EDI	Yes (SWIFT)	Yes (MACS)

*Not in operation at the time of field survey

Source: RIS Survey (2019).

5.5. Conclusions

Trade has special significance for the economies of the NER states. However, transport and logistics bottlenecks have long been identified as serious constraints to the growth of the NER. Growth potential is considerably high in the NER when one considers its geographical proximity to the growing Southeast Asian and East Asian markets. Given its geographical location, enhanced engagement with ASEAN under India's AEP may generate new economic opportunities, thereby fuelling growth in the NER, ceteris paribus.

The NER's value chain potential can be unlocked if border infrastructure and transportation networks, in particular, are improved. To strengthen the connectivity between India and ASEAN, the TLH between India, Myanmar, and Thailand is being developed with a proposed extension of to Cambodia, the Lao PDR, and Viet Nam. The completion of the TLH is likely to facilitate the faster movement of goods and people between India and ASEAN and add growth impetus to the NER.

The NER's connectivity with the ASEAN has witnessed good progress with the construction of the TLH. As the NER is at the forefront of the TLH on the Indian side, this study presents the status of economic linkages of the NER and identifies the constraints behind and at the India–Myanmar border, and recommends policy measures to augment the linkages between the NER and Southeast Asia. Imphal and Moreh are strategic locations. Moreh should be developed as a centre for trade and business. Development should take place at both Moreh and Tamu, otherwise there will be only transit trade.

Chapter 4 reviews the institutional arrangements and identifies key elements that may hinder the movement of goods and people across the India–Myanmar border along the TLH. This chapter concludes that the NER will gain enormously if these challenges are taken care of and the needed mitigation measures are implemented throughout the region.

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Chapter 6

Implications from Geographical Simulation Model Analyses[1]

Maps shown in the study are not to scale. All maps shown in this study are only for demonstrative and study purpose. The shape and boundaries and borders of countries/states shown here do not represent the actual size and shape of countries/states, and the actual size, shape and borders of domestic, national and international boundaries of country/countries shown in the figures/tables/charts and titles.

This paper investigates the expected economic impacts of the development of the Trilateral Highway (TLH) and its eastward extension using the Geographical Simulation Model from the Institute of Developing Economies, Japan External Trade Organization (JETRO) and the Economic Research Institute for ASEAN and East Asia (IDE/ERIA–GSM).

6.1. IDE/ERIA–GSM

Since 2007, IDE–JETRO has been developing the model. The theoretical foundation of the IDE/ERIA–GSM (co-developed with ERIA) follows the New Economic Geography, in particular, Puga and Venables (1996), who captured the characteristics of multi-sector and country general equilibrium.[2]

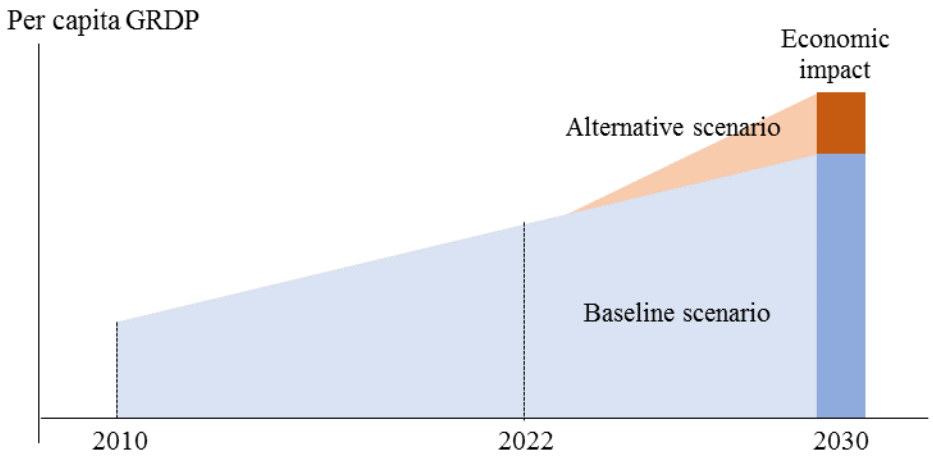
The IDE/ERIA–GSM includes agriculture, five manufacturing sectors (automotive, electric and electronics, apparel, food processing, and other manufacturing), mining, and the services sector. The model allows workers to move within countries and between sectors with frictions. A notable difference between the IDE/ERIA–GSM and the model proposed by Puga and Venables (1996) lies in the agricultural sector. The IDE/ERIA–GSM explicitly incorporates land size in

[1] This chapter is based on Umezaki and Kumagai (2020), which is one of background papers for this project
[2] The earlier version of IDE/ERIA–GSM is explained in Kumagai et al. (2013). For further details of the IDE/ERIA–GSM, see Appendix.

agricultural production and keeps its technology as constant returns to scale. This model incorporates the type of physical or institutional integration that will favourably or adversely affect regions of interest. It also incorporates the impact of policy measures to facilitate international transactions on the magnitude and location of trade traffic. These enable identifying potential roadblocks limiting the benefits of economic integration.

Figure 6.1 shows the differences in gross regional domestic product (GRDP) between the baseline and alternate scenarios through calculating the economic impact of various logistics infrastructures. The baseline scenario assumes national and regional growth based on official statistics and international organisation estimations after 2010, while the alternative assumes that several logistics infrastructures (ex. expressways) will be completed by 2022. We compare the GRDP between these two scenarios in 2030. It should be noted that the baseline scenarios have already assumed around 6% growth at the national level. In other words, the negative impacts do not necessarily mean that GRDP of a region or an industry would shrink compared to its current size. Instead, they would be smaller than what they might have expanded to, i.e., the baseline. More precisely, suppose the result predicts that agriculture in region A would be -1% compared to the baseline in 2030. Moreover, suppose the baseline predicts agriculture would expand from 50 to 100, by whatever units, between 2022 and 2030. Out of 50, -1% is 0.2; therefore, it predicts that agriculture would expand from 50 to 99.8 instead of 100 in 2030.

Figure 6.1. Difference between the Baseline and Alternative Scenarios



GRDP = gross regional domestic product.
Source: IDE/ERIA–GSM Team.

6.2. Baseline and Alternative Scenarios

We conduct a simulation analysis of the following five alternative scenarios. In IDE/ERIA–GSM, the quality of road infrastructure is categorised into four classes in terms of average speed to connect one point with another. The average speed on road segments with standard quality is set at 38.5 km/h.[3] The status quo of the road infrastructure is classified with reference to the recent assessment of the Greater Mekong Subregion (GMS) Economic Corridors by ADB (ADB 2018a-h). Basically, the average speed on the road segments with Class III or below, and/or those in 'poor' conditions, is set at 19 km/h. In addition, each of the five scenarios is simulated in two stages in terms of the quality of road infrastructure; the first stage (average speed of 38.5 km/h) represents 'moderate improvement', and the second stage (average speed of 60.0km/h) represents 'significant improvement'.[4]

Based on the updated information on the TLH and its potential extension routes, the baseline scenario was set as follows. Along the original alignment of the TLH, road sections under 'poor' quality, which are classified as '2' in the model as of 2020, are: (i) Kalewa–Yargyi (115km); (ii) Thaton–Hpa-An (51km); (iii) Hpa-An–Eindu (20km); and (iv) Eindu–Kawkareik (71km). Road sections under 'poor' quality along the eastward extension routes are: (v) Payangazu–Kalaw (76km); (vi) Taunggyi–Loilem (91km); (vii) Loilem–Ta Kaw (177km); (viii) Ta Kaw–Keng Tong (190km); (ix) Tarlay–Keng Lap (56km); (x) Xieng Kok–Muang Sing (69km) in Lao People's Democratic Republic (Lao PDR); and (xi) Tay Trang–Na Thin (19.2km) in Viet Nam. Except for (x) and (xi), all 'poor' quality sections are in Myanmar. In addition, reflecting the fact that the Myanmar–Lao PDR Friendship Bridge, that is, the border between Keng Lap in Myanmar and Xieng Kok in Lao PDR, is yet to be fully utilised as an international border gate, we set the baseline that Myanmar can use the bridge only for transit export to China, Viet Nam, and Thailand via Lao PDR, meaning that Myanmar cannot export to Lao PDR through the bridge. In addition, Myanmar cannot import through the bridge wherever origin countries are. These are the elements of the status quo.

[3] For more details, see Table A5 in the Appendix. The four classes are (1) very poor [walking speed: 4km/h], (2) poor [19km/h], (3) standard [38.5km/h], and (4) highway quality [60km/h].

[4] Although 'significant improvement' is expected to generate larger economic impacts, it will cost much more than 'moderate improvement'. It is a fundamental tenet of the policy domain to determine the quality of infrastructure improvements by comparing the expected benefits and costs.

Scenario 1 **On-time completion of ongoing road infrastructure projects**

Most of the 'poor' quality sections are already being upgraded with specific timelines for completion. The information on the design standard and timeline is already reflected in the alternative scenarios. Specifically, the following are included in this scenario.

- [Myanmar] Kalewa–Yargyi section will be upgraded (2 → 3) in 2022 and beyond, reflecting the fact that the work is planned to be completed in May 2021.
- [Myanmar] Bago–Payagyi–Kyaikhto section will be upgraded (3 → 4) in 2025 and beyond, reflecting the fact that the bypass road is planned to be completed in December 2024.
- [Myanmar] Thaton–Hpa-An–Eindu section will be upgraded to (2 → 3) in 2025 and beyond reflecting the ongoing and planned upgrading work by ADB and Thailand.
- [Myanmar] Eindu–Kawkareik section will be upgraded (2 → 3) in 2021 and beyond, reflecting the fact that the road improvement will be completed in March 2020 and the Gyaing Kawkareik Bridge is planned to be completed in May 2021.
- [India = Myanmar] Improvements in border crossing procedures at Moreh = Tamu border in 2021 and beyond.
- [Myanmar = Thailand] Improvements in border crossing procedures at Myawaddy = Mae Sot border in 2021 and beyond.

Scenario 2a **Eastward extension (Northern route)**

- Scenario 1 inclusive.
- [Myanmar] Payangazu–Kalaw section will be upgraded (2 → 3) in 2021 and beyond, based on the observation of ongoing improvement work.
- [Myanmar] Taunggyi–Loilen–Takaw–Kentung section will be upgraded (2 → 3) in 2025 and beyond. As of December 2019, foreigners' entry into this section is restricted for security reasons. However, in order to activate this extension route, normalisation of this section is necessary.
- [Myanmar] Tarlay–Keng Lap section will be improved (2 → 3) in 2025 and beyond. Brownfield investment in this section has been listed in the Initial Rolling Pipeline of Potential ASEAN

Infrastructure Projects (Initial Pipeline) under the Master Plan on ASEAN Connectivity 2025 (World Bank et al., 2019).[5]

- [Lao PDR] Xieng Kok–Muang Sing section will be upgraded (2 → 3) in 2025 and beyond.
- [Viet Nam] Tay Trang–Na Thin section in Viet Nam will be upgraded (2 → 3) in 2021 and beyond, reflecting the ongoing repair and improvement works.
- [Lao PDR = Viet Nam] Improvements in border crossing procedures at Pang Hoc = Tay Trang border in 2021 and beyond.

Scenario 2b **Eastward extension (Northern route) + internationalisation of the Myanmar–Lao Friendship Bridge**

- Scenario 2a inclusive.
- [Myanmar = Lao PDR] Internationalisation of the Myanmar–Lao Friendship Bridge at Kyainglat = Xieng Kok border in 2021 and beyond, by removing specific settings in the baseline scenario to allow international trade between Myanmar and Lao PDR, including transit trade via each other, in the same way as other border points.

Scenario 3 **Eastward extension (Southern route)**

- Scenario 1 inclusive.
- [Thailand = Cambodia] Improvements in border crossing procedures at Ban Khlong Luek = Poipet border in 2021 and beyond.
- [Cambodia = Viet Nam] Improvements in border crossing procedures at Bavet = Moc Bai border in 2021 and beyond.

Scenario 4a **All**

- Scenario 2b inclusive.

[5] According to World Bank et al. (2019), '(t)his project is at an early stage of development and it is understood that no studies on the project have been carried out to date, ' as of November 2019.

- Scenario 3 inclusive.

Scenario 4b **All (challenging)**

- Scenario 4a inclusive.
- [All] Upgrade all TLH and eastward extension sections to 'highway quality' (3 → 4), enabling trucks to drive at 60 km/h on average.

6.3. Simulation Results and Implications

(1) By Countries

The simulation results are shown in Figures 6.2 and 6.3. Tables 6.1 to 6.6 illustrate more details of the results of scenarios S1 to S4b respectively. At first glance, several characteristics can be pointed out. First, the impacts on India and Thailand are much smaller than those on Myanmar, both in terms of the difference in the value (Figure 6.2) and percentage (Figure 6.3), as would be expected since most of the TLH is in Myanmar. Second, the internationalisation impact of the Myanmar–Lao Friendship Bridge is very small, indicating that the potential demand for transportation crossing the border is limited. Relating to this, the expected impact on Lao PDR is small. Third, comparison of S4a and S4b shows that the better the quality of the road, the larger the impacts are. Fourth, the expected impacts on Cambodia and Viet Nam depend on the choice of the extension routes.

Scenario 1 (S1), together with the completion of the ongoing projects and improvements in border crossing procedures at Moreh = Tamu and Myawaddy = Mae Sot borders, implies the completion of the original alignment of the TLH. Under this scenario, Myanmar's gross domestic product (GDP) is expected to increase by 0.12% compared to the baseline in 2035, while the impacts on India and Thailand are also positive but very small. Reflecting the original alignment of the TLH, in which almost all road segments are in its territory, Myanmar is expected to enjoy most of the gains, amounting to 74.9% of the increase in GDP in the three countries, while Thailand and India share 22.0% and 3.1% respectively. Thailand and India have already invested in the construction of roads along the TLH. First, Thailand aided Myanmar to construct the bypass road between Myawaddy and Kawkareik, which used to be the most significant bottleneck for

the road connectivity between Myanmar and Thailand. In addition, Thailand 'agreed to shoulder the B1.8 billion (US$52 million) cost for improving a 68 km road linking the towns of Eindu and Thaton in southern Myanmar.'[6] India has been assisting Myanmar in the construction of the Kalewa–Yargyi section of the TLH. It is important for each member of the trilateral cooperation to pay appropriate attention to the balance between the cost and benefit related to the TLH.

The impacts of the eastward extension routes differ significantly by country and by the choice of the route. The overall impact is larger in the case of northern route (S2b), where the total GDP gain in India, Myanmar, and Thailand amounts to US$677 million (Table 6.3), US$168 million more than the comparable figure for the southern route (S3) (Table 6.4). Myanmar will capture most of the gains in both cases. As expected, the southern route will benefit Cambodia and Viet Nam, while the expected benefit for Lao PDR is very small, even in the case of the northern route. The difference between the results of S1b and S1a shows that the impact of internationalisation of the Myanmar–Lao Friendship Bridge is marginal, implying that the potential demand for trade across Kyainglat = Xieng Kok border is limited. According to the World Bank, et al. (2019), the estimated cost for improving the Tarlay–Kyainglat section (56 km) is US$71 million. It could cost more to pave the 69 km earthen section between Xieng Kok and Muang Sing in Lao PDR. Again, it is important for Myanmar and Lao PDR to examine deliberately the balance of costs and benefits to realise this scenario (S2b).

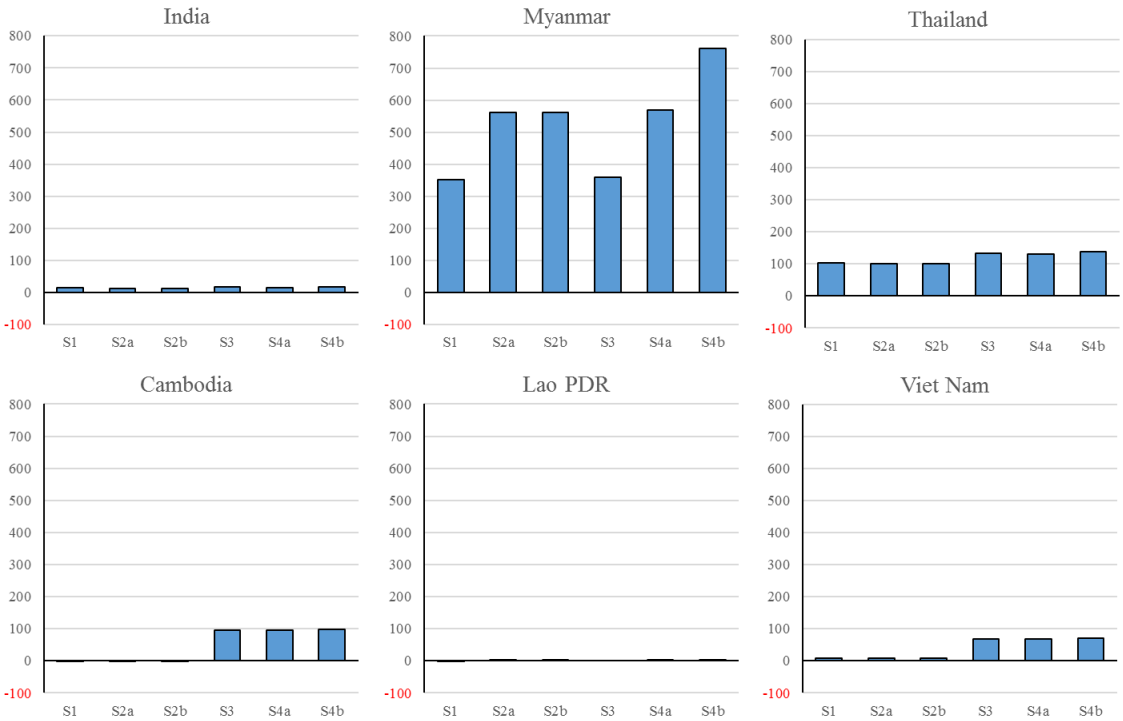
Tables 6.3 and 6.4 allow us to compare the expected benefits of the two potential routes for the eastward extension. The total gains of the six countries (India, Myanmar, Thailand, Cambodia, Lao PDR, and Viet Nam) are slightly larger in the case of the northern route (S2b, US$686 million) than the southern route (S3, US$674 million). However, the distribution of the benefits is different. As mentioned above, the total expected gain for India, Myanmar, and Thailand in S2b is US$677 million, which shares 98.7% of the total gain for the six countries. That is, the expected gains for Cambodia, Lao PDR, and Viet Nam amount only to US$9 million (1.3%). In contrast, the southern extension route will benefit Cambodia and Viet Nam significantly, US$97 million and US$68 million respectively (Table 6.4). That is, the southern route is preferable for Cambodia and Viet Nam and, to a lesser extent, Lao PDR, than the northern route. In addition, expected impacts of the northern and southern routes need to be compared taking the necessary costs into

[6] 'Thailand to Support Upgrade of Key Road Link in Southern Myanmar,' Greater Mekong Subregion Secretariat, 5 September 2018.

account. The southern route does not require additional costs to improve road infrastructure on the extension parts, because the road sections are already in better condition than those on the northern extension route. Even though the total expected gains for the six countries are slightly larger in the northern route (S2b), it could cost significantly more than the southern route (S3). Another important point is the expected impacts on Myanmar, which is US$562 million in S2b, in contrast to US$358 million in S3. Indeed, if we compare the expected gains in GDP, the northern route is preferable only for Myanmar amongst the six countries.

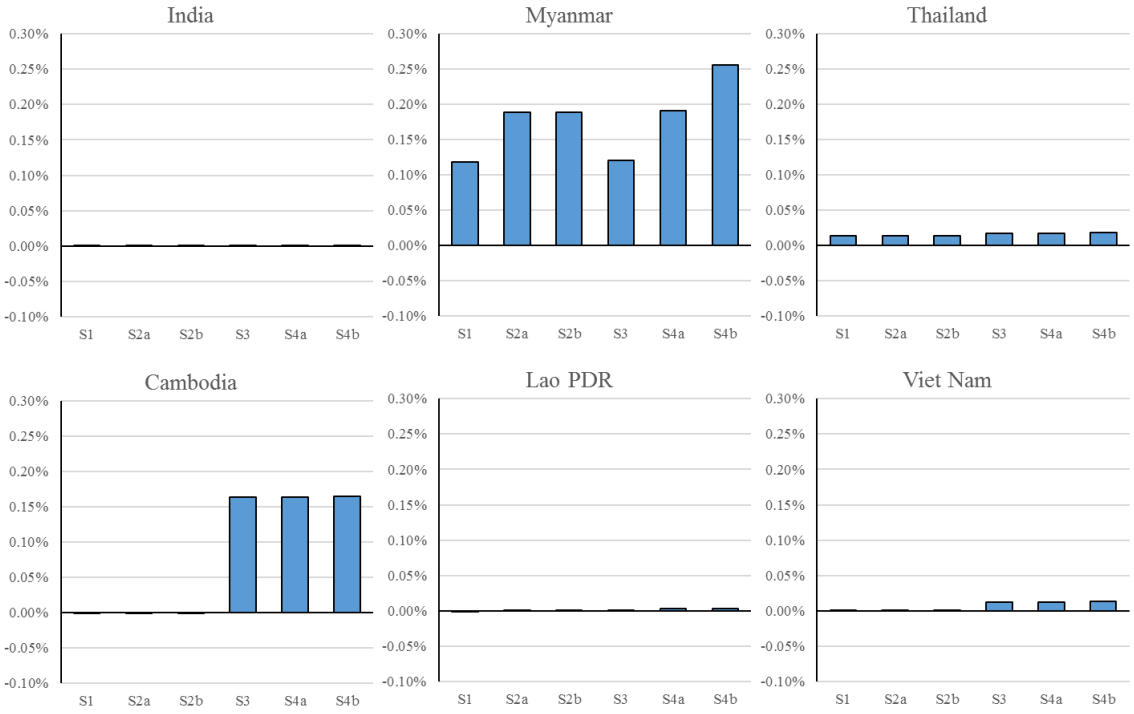
It is natural to expect the highest gains in the case of the 'all' development scenario (S4a), which includes both the northern and southern routes in addition to the original alignment of the TLH (Table 6.5). The additional scenario (S4b) to upgrade all routes to highway standard is expected to magnify the impacts to all six countries (Table 6.6). Again, these results need to be evaluated together with the cost consideration.

Figure 6.2. Impacts by Countries (difference in US$ millions vs. Baseline)



Lao PDR = Lao People's Democratic Republic, US$ = US dollars.
Source: Estimated by IDE/ERIA–GSM Team.

Figure 6.3. Impacts by Countries (% difference vs. Baseline)



Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

Table 6.1. Results of S1 by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	23.51	▼ 0.86	0.05	▼ 0.06	▼ 2.35	▼ 5.57	▼ 0.41	0.07	14.39
Myanmar	5.04	9.79	1.19	1.32	372.44	8.51	▼ 46.78	0.06	351.56
Thailand	2.98	▼ 1.38	▼ 0.58	2.28	100.78	▼ 3.12	2.33	▼ 0.04	103.25
Cambodia	0.03	0.00	0.00	0.10	▼ 0.43	0.01	0.07	0.00	▼ 0.21
Lao PDR	▼ 0.00	0.00	▼ 0.00	0.00	▼ 0.31	▼ 0.00	0.19	▼ 0.00	▼ 0.12
Viet Nam	0.55	▼ 0.00	0.01	0.26	7.70	0.07	0.03	0.00	8.63
China	▼ 0.31	▼ 0.94	▼ 1.66	0.56	▼ 37.07	5.00	0.46	0.42	▼ 33.54
Japan	0.07	▼ 0.91	▼ 0.29	▼ 0.03	▼ 3.26	▼ 2.16	19.18	▼ 0.00	12.61
IMT	31.53	7.55	0.66	3.54	470.87	▼ 0.18	▼ 44.86	0.09	469.20
IMT+CLV	32.11	7.55	0.68	3.91	477.83	▼ 0.10	▼ 44.56	0.09	477.50
ASEAN10	8.72	8.66	0.06	4.05	484.06	4.41	▼ 36.34	0.02	473.63
EA16	32.21	5.94	▼ 1.31	4.59	439.77	▼ 0.81	▼ 2.80	0.48	478.05

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

Table 6.2. Results of S2a by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	24.08	▼ 1.22	0.00	▼ 0.13	▼ 2.93	▼ 5.04	▼ 1.18	0.07	13.64
Myanmar	14.58	7.34	1.11	1.01	294.24	0.54	242.70	0.05	561.56
Thailand	3.13	▼ 1.36	▼ 0.58	2.36	98.74	▼ 3.16	2.21	▼ 0.02	101.32
Cambodia	0.03	0.00	0.00	0.10	▼ 0.42	0.01	0.06	0.00	▼ 0.21
Lao PDR	0.05	▼ 0.01	▼ 0.01	▼ 0.06	0.01	▼ 0.24	0.26	0.36	0.37
Viet Nam	0.57	0.00	0.01	0.39	7.74	0.05	0.02	0.14	8.92
China	0.36	0.02	▼ 1.31	0.50	▼ 38.23	7.41	▼ 0.28	0.54	▼ 31.00
Japan	0.15	▼ 0.85	▼ 0.30	▼ 0.04	▼ 3.00	▼ 2.14	16.81	▼ 0.00	10.63
IMT	41.79	4.76	0.53	3.24	390.05	▼ 7.67	243.73	0.10	676.51
IMT+CLV	42.44	4.75	0.53	3.67	397.38	▼ 7.84	244.07	0.60	685.60
ASEAN10	18.54	6.28	▼ 0.03	3.89	404.14	▼ 3.88	252.67	0.54	682.15
EA16	43.36	4.22	▼ 1.13	4.26	357.44	▼ 6.05	280.81	1.12	684.03

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

Table 6.3. Results of S2b by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	24.08	▼ 1.22	0.00	▼ 0.13	▼ 2.93	▼ 5.05	▼ 1.18	0.07	13.63
Myanmar	14.58	7.34	1.11	1.01	294.27	0.53	242.69	0.05	561.59
Thailand	3.13	▼ 1.36	▼ 0.58	2.36	98.74	▼ 3.16	2.21	▼ 0.02	101.31
Cambodia	0.03	0.00	0.00	0.10	▼ 0.42	0.01	0.06	0.00	▼ 0.21
Lao PDR	0.05	▼ 0.01	▼ 0.01	▼ 0.06	0.01	▼ 0.24	0.27	0.36	0.37
Viet Nam	0.57	0.00	0.01	0.39	7.78	0.05	0.02	0.15	8.96
China	0.36	0.02	▼ 1.31	0.50	▼ 38.24	7.41	▼ 0.28	0.54	▼ 31.01
Japan	0.15	▼ 0.85	▼ 0.30	▼ 0.04	▼ 3.00	▼ 2.14	16.81	▼ 0.00	10.63
IMT	41.79	4.76	0.53	3.24	390.07	▼ 7.67	243.72	0.10	676.53
IMT+CLV	42.44	4.75	0.53	3.67	397.44	▼ 7.85	244.08	0.60	685.66
ASEAN10	18.54	6.28	▼ 0.03	3.89	404.20	▼ 3.89	252.68	0.54	682.22
EA16	43.36	4.22	▼ 1.13	4.26	357.49	▼ 6.05	280.82	1.13	684.09

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.

Source: Estimated by IDE/ERIA–GSM Team.

Table 6.4. Results of S3 by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	23.82	▼ 1.11	0.58	▼ 0.79	▼ 2.95	▼ 4.51	1.78	0.10	16.93
Myanmar	5.27	9.65	1.17	1.32	379.79	8.21	▼ 46.99	0.06	358.47
Thailand	8.17	5.17	▼ 1.67	17.67	109.07	▼ 7.97	2.76	0.01	133.20
Cambodia	4.68	2.07	0.31	73.16	19.00	2.92	▼ 5.53	0.02	96.64
Lao PDR	0.01	▼ 0.02	▼ 0.01	▼ 0.08	0.49	▼ 0.08	0.23	0.01	0.54
Viet Nam	5.73	3.54	0.37	20.19	37.57	3.30	▼ 2.96	0.12	67.86
China	2.99	▼ 3.65	▼ 0.51	▼ 16.94	▼ 42.01	15.92	▼ 0.21	0.53	▼ 43.88
Japan	0.13	▼ 0.44	0.21	▼ 0.54	▼ 3.33	▼ 0.85	21.26	▼ 0.00	16.43
IMT	37.25	13.71	0.08	18.20	485.91	▼ 4.27	▼ 42.45	0.17	508.60
IMT+CLV	47.68	19.30	0.76	111.47	542.97	1.86	▼ 50.71	0.32	673.64
ASEAN10	24.29	19.88	0.06	111.46	549.68	6.21	▼ 44.23	0.23	667.57
EA16	51.79	14.05	1.19	92.80	499.57	14.71	▼ 4.63	0.86	670.34

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

Table 6.5. Results of S4a by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	24.38	▼ 1.48	0.53	▼ 0.86	▼ 3.52	▼ 3.99	1.01	0.09	16.17
Myanmar	14.81	7.20	1.08	1.01	301.61	0.23	242.48	0.05	568.48
Thailand	8.32	5.20	▼ 1.67	17.74	107.03	▼ 8.01	2.64	0.03	131.27
Cambodia	4.68	2.07	0.31	73.16	19.02	2.92	▼ 5.54	0.02	96.64
Lao PDR	0.06	▼ 0.03	▼ 0.02	▼ 0.13	0.70	▼ 0.31	0.32	0.37	0.96
Viet Nam	5.75	3.54	0.37	20.31	37.58	3.28	▼ 2.97	0.26	68.12
China	3.65	▼ 2.70	▼ 0.17	▼ 17.01	▼ 43.17	18.32	▼ 0.94	0.65	▼ 41.35
Japan	0.20	▼ 0.38	0.20	▼ 0.55	▼ 3.08	▼ 0.83	18.88	▼ 0.00	14.45
IMT	47.51	10.92	▼ 0.05	17.89	405.12	▼ 11.76	246.13	0.18	715.93
IMT+CLV	58.00	16.50	0.61	111.23	462.41	▼ 5.88	237.94	0.82	881.64
ASEAN10	34.11	17.50	▼ 0.03	111.30	469.66	▼ 2.08	244.79	0.75	876.01
EA16	62.93	12.33	1.37	92.48	417.13	9.47	278.99	1.50	876.21

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

Table 6.6. Results of S4b by Countries and Industries (in US$ millions)

	Agriculture	Automotive	Electrics and Electronics	Textile	Food Processing	Other Manufacturing	Services	Mining	Real GDP
India	25.49	▼ 1.62	0.52	▼ 0.90	▼ 3.96	▼ 4.12	1.04	0.11	16.57
Myanmar	19.66	5.90	1.27	1.05	306.42	▼ 1.60	428.76	0.05	761.52
Thailand	8.52	5.13	▼ 1.65	17.93	112.44	▼ 8.33	3.05	0.03	137.12
Cambodia	4.70	2.08	0.32	73.45	19.06	2.93	▼ 5.52	0.02	97.04
Lao PDR	0.06	▼ 0.03	▼ 0.02	▼ 0.13	0.69	▼ 0.31	0.34	0.37	0.96
Viet Nam	5.81	3.57	0.43	20.48	38.35	3.86	▼ 3.07	0.26	69.68
China	3.84	▼ 2.35	▼ 0.49	▼ 17.09	▼ 45.90	19.29	▼ 1.33	0.75	▼ 43.27
Japan	0.23	▼ 0.55	0.03	▼ 0.58	▼ 3.32	▼ 1.64	20.78	▼ 0.00	14.94
IMT	53.67	9.41	0.15	18.08	414.90	▼ 14.05	432.86	0.19	915.21
IMT+CLV	64.25	15.03	0.87	111.88	473.00	▼ 7.58	424.61	0.84	1082.90
ASEAN10	39.29	16.16	0.13	111.97	481.02	▼ 3.96	432.64	0.76	1078.02
EA16	69.47	11.03	1.05	92.98	424.84	7.30	469.10	1.62	1077.40

CLV = Cambodia, Lao PDR, and Viet Nam; GDP = gross domestic product; IMT = India, Myanmar, Thailand; ASEAN10 = 10 ASEAN Member States; EA16 = ASEAN10 + Australia, China, India, Japan, Republic of Korea, and New Zealand; Lao PDR = Lao People's Democratic Republic.
Source: Estimated by IDE/ERIA–GSM Team.

(2) By Countries and Industries

As shown in Table 6.1, the completion of the original TLH (S1) is expected to increase real GDP of India, Myanmar, and Thailand by US$14.4 million, US$351.6 million, and US$103.2 million, respectively, against the baseline in 2035. As discussed above, Myanmar will gain most of the benefits, and the increment is equivalent to 0.12% of the baseline GDP. The positive impact is driven mainly by the manufacturing sector (US$93.2 million), of which food processing (US$372.4 million) plays a major role. The expected decline in the service sector (▼US$46.8 million) will offset the gain to some extent. Thailand will be the second-largest beneficiary (US$103.2 million) led mainly by the growth of the food processing sector (US$100.8 million), whereas other manufacturing (▼US$3.1 million), automotive (▼US$1.4 million), and electrics and electronics (▼US$0.6 million) sectors are expected to lose slightly in comparison with the baseline. Although the impact on India is limited, agriculture is expected to gain the most (US$23.5 million), part of which will be offset by the expected decline in manufacturing (▼US$8.8 million). The expected impacts on Cambodia and Lao PDR are negative, though the size is small. The improvement in logistics infrastructure, as specified in S1, increases the attractiveness of Myanmar as a trade partner relative to Cambodia and Lao PDR. In this line of discussion, China benefits the least in S1, with its real GDP expected to decrease US$33.5 million from the baseline in 2035. Most of the negative impacts are found in food processing (▼US$37.1

million), probably in exchange for the growth of the industry in Myanmar and Thailand as mentioned above.

The northern extension route (S2b) is expected to increase the impacts of the original TLH (S1) in Myanmar by 59.7% from US$351.6 million to US$561.6 million (Tables 6.1 and 6.3). Lao PDR and Viet Nam will gain, but the impacts are small. In this scenario, Thailand (US$101.3 million) is second-largest beneficiary after Myanmar, and India (US$13.6 million) follows; the positive impacts are slightly smaller than the case of S1. Although a major part of the expected gains in Myanmar is attributable to food processing (52.4%), in this scenario, the service sector will contribute significantly (43.2%, or US$242.7 million). This is a striking contrast with S1, under which the service sector is expected to decline by US$46.8 million (Table 6.1). The positive impact on India is contributed mainly by agriculture (176.5%), a large part of which will be offset by negative impacts on manufacturing and the service sector. The impact of the northern extension route on Cambodia is negligible. Although China will be negatively affected, the impact is smaller than in the original TLH (S1), probably because some of the negative impacts of the original TLH can be offset by the positive effects of enhanced connectivity along the extension route.

The southern extension route also magnifies the impacts of the original TLH but in a different way from the northern extension route (Table 6.4). The additional impacts on India, Myanmar, and Thailand are all positive, but in favour of India and Thailand. Compared with S1 (Table 6.1), India, Myanmar, and Thailand will gain 17.7%, 2.0%, and 29.0%, respectively. This result is quite reasonable in the sense that the southern extension route connects the TLH effectively with the GMS economic corridors, which are already developed more than the northern route. As illustrated in Figure 1-1, the section between Mae Sot and Tak is a part of the East–West Economic Corridor, the section between Tak and Bangkok is a part of the North–South Economic Corridor (NSEC), and the remaining sections are on the Southern Economic Corridor. There used to be several bottlenecks along these corridors, such as the road section between Poipet and Sisophon, and the lack of a bridge over the Mekong River in Neak Loung. Under the GMS Economic Cooperation Program, these bottlenecks have already been removed by improvement of the road and the construction of Tsubasa Bridge. Cambodia will gain an additional US$96.6 million over the baseline in 2035, at the expense of Lao PDR, which will benefit only a small amount (US$500,000). Viet Nam is expected to be the fourth-largest beneficiary (US$67.9

million) after Myanmar (US$358.5 million), Thailand (US$133.2 million) and Cambodia. The total gain of all six countries amounts to US$673.6 million, slightly less than the case of the northern extension route (US$685.7 million). However, the distribution of the gains differs significantly. Only Myanmar would prefer the northern extension route to the southern extension route, and Thailand, Cambodia, and Viet Nam would prefer the southern extension route. For Lao PDR, the expected impacts of the eastward extension routes, both northern and southern, are very small and the difference is negligible. In this case, a cost–benefit consideration may lead Lao PDR not to invest in upgrading the northern extension route, because it would incur costs for which the expected benefit is small. Again from a regional perspective, it should be recalled that the costs for road improvement will be smaller in the case of the southern extension route because most of necessary improvements have already been done.

Tables 6.5 and 6.6 show the simulation results of the most comprehensive scenario in this study, which includes the completion of the original TLH, the northern extension route, and the southern extension route. An important implication of this scenario is that distributional concerns regarding S2b and S3 can be mitigated significantly.

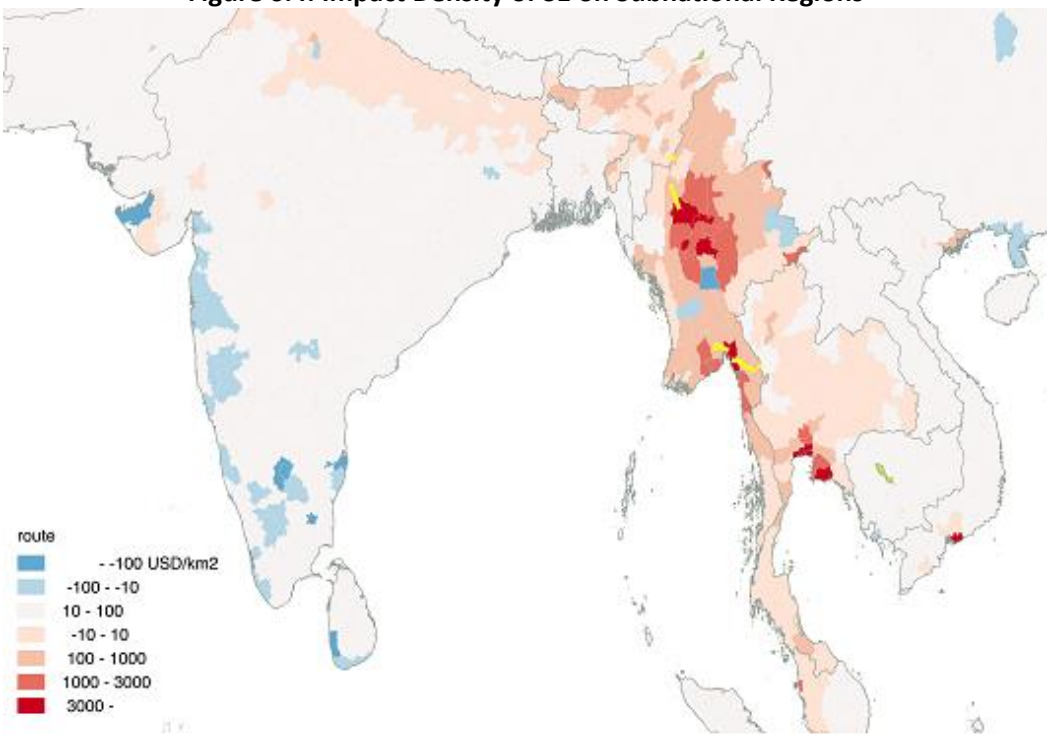
The distributional implications across sectors are roughly the same for all scenarios. The additional growth in Myanmar will be supported by food processing, and the contribution of the service sector is significant only when the northern extension route is developed. Despite the overall benefits, Indian manufacturing may be negatively affected. In contrast, manufacturing in Myanmar and Thailand is expected to gain. Cambodia will also expand its manufacturing, led mainly by the textile sector.

(3) By Subnational Regions

A major benefit of IDE/ERIA–GSM is that it can estimate economic impacts on a subnational level. This section illustrates the simulation results of scenarios 1 to 4b. At first glance, two important implications can be drawn from Figures 6.4 to 6.9. First, the economic impacts are unevenly distributed in favour of the regions along the road to be upgraded. In contrast, other regions may be negatively affected in terms of the difference with the baseline scenario. Second, the economic impacts are expected to spread to wider regions far beyond the scope of logistics enhancement.

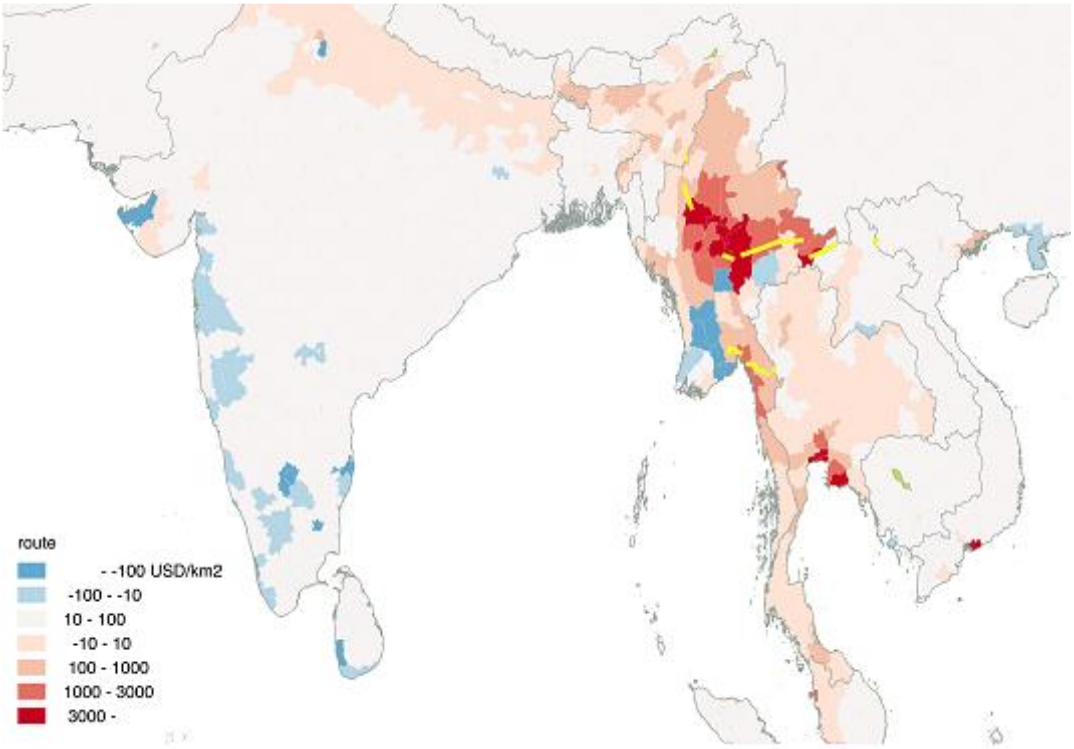
As discussed above, the completion of the original TLH (S1) will increase Myanmar's real GDP by US$351.6 million in comparison with the baseline. Looking at the impact density, which is defined as the economic impacts in US$ terms per km^2, Mandalay gains most (US$29,239/$km^2$), followed by Nyaung-U (US$8,190/$km^2$), Monywa (US$4,699/km^2), Sagain (US$3,937/$km^2$), and Meiktila (US$3,798/km^2). All these provinces are along the TLH and in the central dry zone. In contrast, Nay Pyi Taw will be negatively affected most significantly (▼US$3,647/$km^2$), probably because several economic activities are attracted to Mandalay and surrounding provinces where business environments will be improved particularly from logistic perspectives. In addition, Pyay (▼US$34/$km^2$), Kengtung (▼US$28/km^2), Matman (▼US$14/$km^2$), and Myitkyina (▼US$6/km^2) will be negatively affected in comparison with the baseline. The relative improvement of the investment climate in the regions along the TLH implies relative deterioration of investment climate in other provinces. Although total impact on Myanmar is positive, uneven distribution of the gains may cause difficulties in implementation. Indeed, this can be a serious bottleneck in Myanmar, where regional disparities already prevailed, and the uneven distribution of the economic impacts can worsen existing ethnic conflicts. In India, several regions in the northeast, particularly those in Assam and Manipur, are expected to gain, although the positive impacts are small. In Thailand, several regions far from the TLH will be affected, namely Samut Prakarn (US$19,091/$km^2$), Samut Sakhon (US$15,661/km^2), Bangkok (US$11,234/$km^2$), and Rayong (US$5,361/km^2), Ayudhya (US$1,964/$km^2$), and Chonburi (US$1,884/km^2), which are existing centres of economic activity.

Figure 6.4. Impact Density of S1 on Subnational Regions



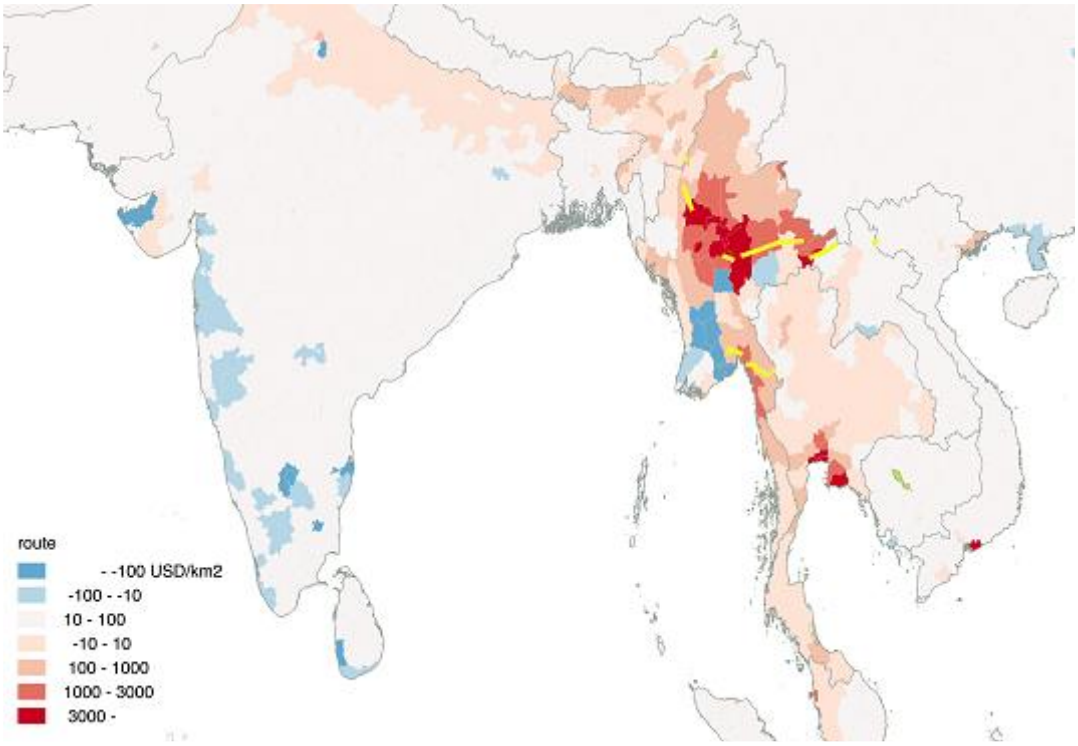
Source: IDE/ERIA–GSM Team.

Figure 6.5. Impact Density of S2a on Subnational Regions



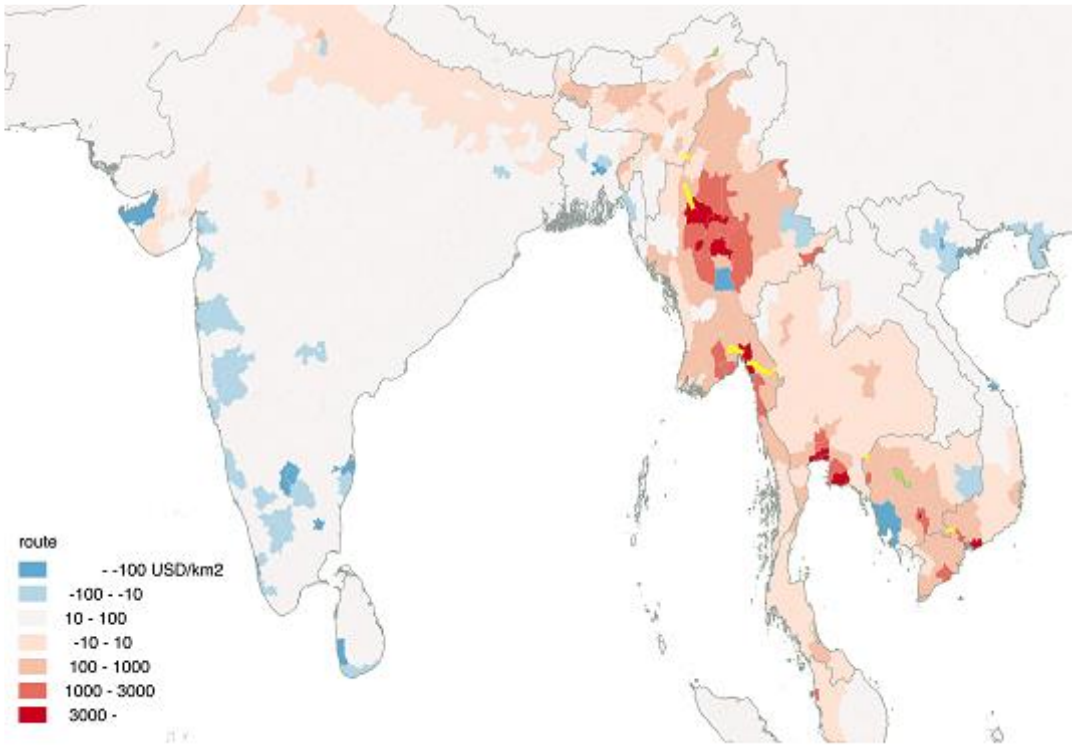
Source: IDE/ERIA–GSM Team.

Figure 6.6. Impact Density of S2b on Sub-National Regions



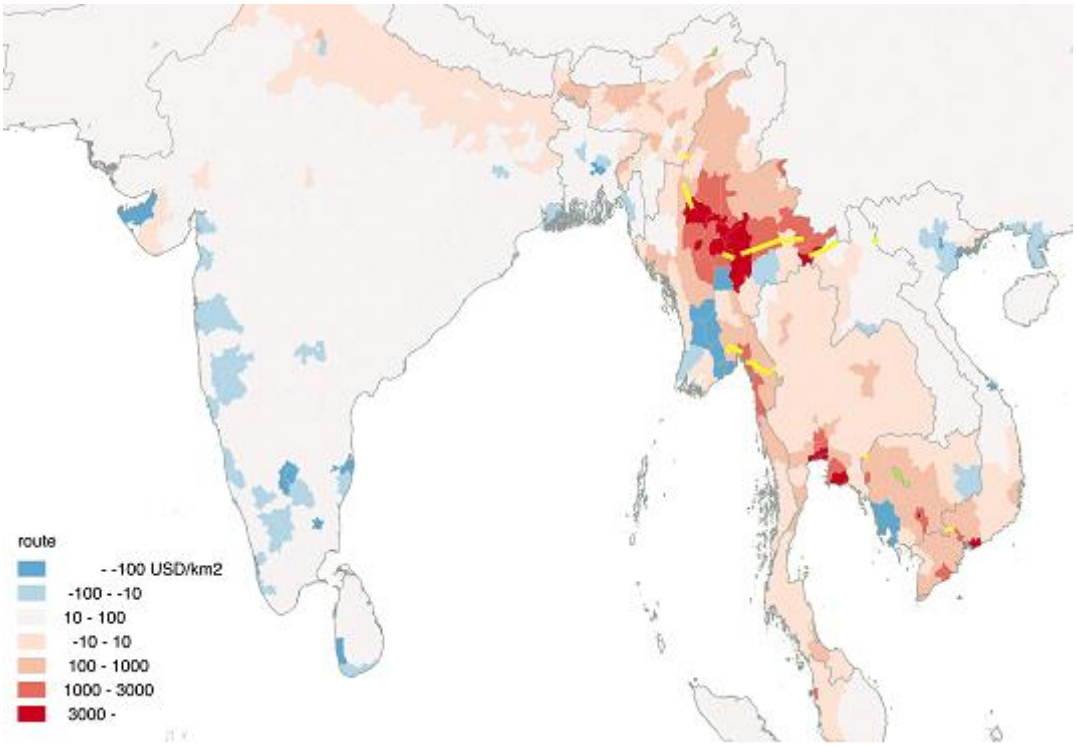
Source: IDE/ERIA–GSM Team.

Figure 6.7. Impact Density of S3 on Sub-National Regions



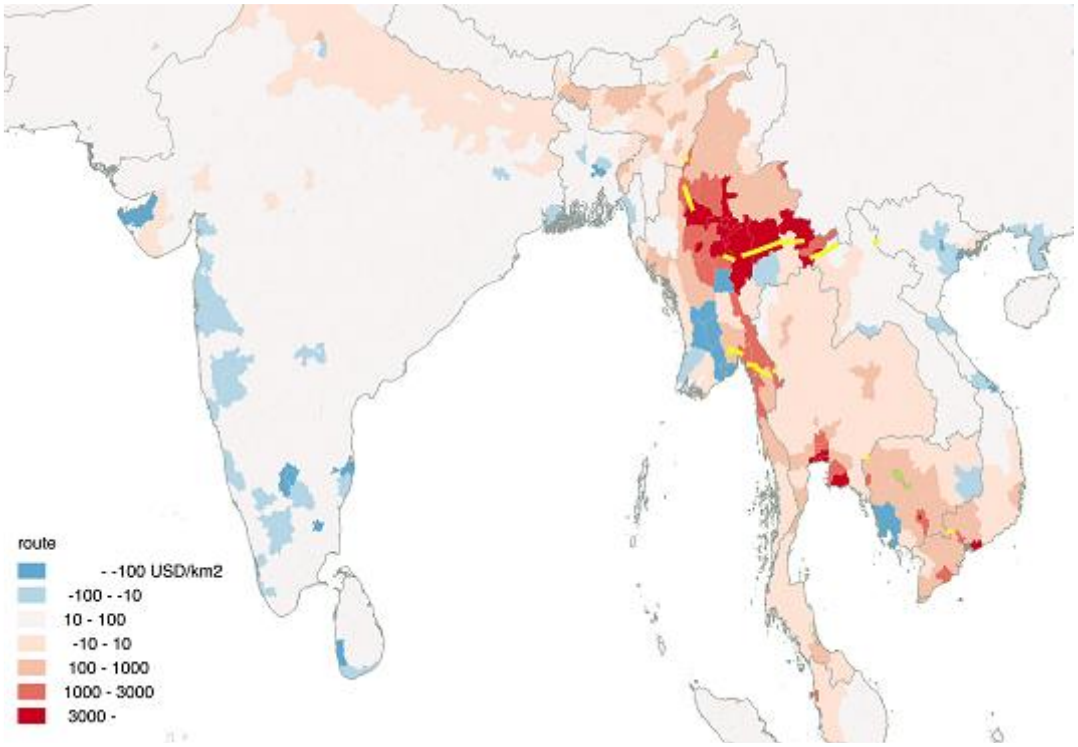
Source: IDE/ERIA–GSM Team.

Figure 6.8. Impact Density of S4a on Subnational Regions



Source: IDE/ERIA–GSM Team.

Figure 6.9. Impact Density of S4b on Subnational Regions



Source: IDE/ERIA–GSM Team.

It is important to highlight that several regions far from the TLH could be affected, such as Ba Ria-Vung Tau (US$3,795/km^2) in Viet Nam, Kuala Lumpur (US$5,838/km^2) and Pulau Pinang (US$1,556/km^2) in Malaysia, and Singapore (US$2,078/km^2).

The northern extension route is expected to affect adjacent regions (Figure 6.6). Mandalay (US$32,506/km^2) maintains its position to be the largest beneficiary, followed by Tachileik (US$7,823/km^2). Taunggyi (US$5,007/km^2), Kengtung (US$2,457/km^2), Loilem (US$2,015/km^2), and Monghpyak (US$1,800/km^2) are expected to gain in comparison with the baseline and S1 as well. Comparing the impact densities between S2b and S1, Tachileik is the most significantly affected (+US$7,470/km^2), followed by Taunggyi (+US$3,941/km^2), Mandalay (+US$3,267/km^2), Kengtung (+US$2,486/km^2), and Loilem (+US$2,486/km^2). In contrast, the most significant negative change caused by the northern extension route is in Yangon, where the expected impacts would turn from US$1,097/km^2 (S1) to ▼US$574/km^2 (S2b). That is, the development of the northern extension route will attract more economic activities to the regions along the road, at the expense of other parts of the country including Yangon.

Northern provinces in Lao PDR and Viet Nam will also be positively affected. In Lao PDR, three provinces along the northern extension route, Oudomxai (US$16/km^2), Phongsali (US$10/km^2), and Luang Namtha (US$8/km^2), will be positively affected, although the impacts are small. In Viet Nam, in addition to Ba Ria-Vung Tau, Quang Ninh (US$129/km^2), Ha Noi (US$94/km^2), and Hai Phong (US$12/km^2) will be positively affected in comparison both with the baseline and S1.

The southern extension route (S3) will have more significant impacts on wider provinces in Thailand, Cambodia, and Viet Nam than the northern extension route, probably because it establishes the connection to already better developed road networks (Figure 6.7). In Myanmar, in addition to the regions along the original alignment of the TLH toward India, those toward Thailand will also be positively affected, such as Thaton (US$3,198/km^2) and Mawlamyine (US$2,014/km^2). In Cambodia, Phnom Penh, mainly led by textile sector impacts, will be very positively affected (US$203,542/km^2) as compared to US$81/km^2 in the case of S1. In Viet Nam, Ba Ria-Vung Tau will experience the largest impact (US$22,023/km^2).

The ‘all’ development scenario (S4a) will of course have the largest and most widespread economic impacts. In Myanmar, large cities along the TLH, including Mandalay (US$32,690/km^2), Monywa (US$4,989/km^2), Meiktila (US$4,347/km^2), Sagain (US$4,340/km^2), and Kyaukse

(US$3,278/km^2) will be significantly and positively affected. In Cambodia, Phnom Penh (US$203,532/km^2) will gain the most, followed by Kandal (US$2,350/km^2) which surrounds Phnom Penh, Pailin (US$1,809/km^2) near the Thai border, and Svay Rieng (US$690/km^2) facing the border with Viet Nam. In Viet Nam, Ba Ria-Vung Tau (US$21,965/km^2) and Ho Chi Minh City (US$2,620/km^2) will be the two largest beneficiaries. In contrast, metropolitan cities in the north, such as Ha Noi (▼US$973/km^2) and Hai Phong (▼US$209/km^2), will be slightly but negatively affected. Regions along the northern extension route are also positively affected, such as Tachileik (US$12,958/km^2), Taunggyi (US$5,018/km^2), Keng Tung (US$2,458/km^2), and Loilem (US$2,222/km^2) in Myanmar, and Oudomxai (US$17/km^2), Phongsali (US$8/km^2), and Louang Namtha (US$6/km^2) in Lao PDR. These are relatively less-developed regions, even within less-developed countries such as Myanmar and Lao PDR, and have been facing difficulties in economic growth due mainly to the weak connectivity to the other parts of the region. The simulation results of S2b and S4a clearly demonstrate that the northern extension route is an effective way to open these provinces to economic development led mainly by food processing, services, and agriculture.

In Thailand, the biggest positive impacts, which are significantly bigger than those under S1, are expected in Bangkok and surrounding regions. In India, expected impacts of S4a are similar to those of S1, implying that the eastward extension route will not have significant additional impacts over the original alignment of the TLH. In northeastern India, the largest economic impact is expected in Dimapur (US$325/km^2) in Nagaland, followed by Dibrugarh (US$319/km^2), Darrang (US$307/km^2), Sibsagar (US$284/km^2), and Nalbari (US$227/km^2) in Assam, and East Imphal (US$266/km^2), West Imphal (US$241/km^2), Kohima (US$202/km^2), and Thoubal (US$139/km^2) in Manipur.

(4) Impacts on Narrowing the Development Gaps

As discussed above, upgrading road infrastructure and improving border procedures are expected to have positive economic impacts on the regions along the road. While some regions away from the route could suffer from negative impacts (vis-à-vis the baseline), others may have positive impacts, as we observed in Thailand and Viet Nam. That is, the impacts of transport corridors are expected to spread to wider regions differently. In order to investigate distributional consequences of the development of the TLH and its eastward extensions, a variant of the Gini coefficient was computed using the simulation results, which contain the

estimates of GRDP and population in each region, and an implicit assumption of perfect equality in each region.

As shown in Table 6.7, the distributional impact of each scenario is very small. Although the impacts of each scenario differ by regions, the distributional impacts are almost invisible because the additional impact generated by each development scenario is expected to be too small.

Table 6.7. Impacts on Gini Coefficients

	# of regions	Base(20)	Base(35)	S1(35)	S2a(35)	S2b(35)	S3(35)	S4a(35)	S4b(35)
India	576	0.447	0.459	0.459	0.459	0.459	0.459	0.459	0.459
Myanmar	69	0.288	0.329	0.331	0.330	0.330	0.331	0.330	0.330
Thailand	76	0.505	0.469	0.468	0.468	0.468	0.468	0.468	0.468
Cambodia	24	0.283	0.306	0.306	0.306	0.306	0.306	0.306	0.306
Lao PDR	17	0.197	0.208	0.208	0.208	0.208	0.208	0.208	0.208
Viet Nam	61	0.448	0.460	0.459	0.459	0.459	0.459	0.459	0.459

Lao PDR = Lao People's Democratic Republic.
Source: Computed based on the simulation results.

6.4. Conclusions

Implications from this simulation analysis can be summarised as follows:

First, the expected impact of the TLH, including its eastward extensions, is not large both in terms of increasing GDP and narrowing development gaps in the region. This is mainly because of the lack of vibrant economic agglomeration along the route. Although Bangkok, Ho Chi Minh City, and Ha Noi are included in the eastward extension routes, they constitute only one side of the original alignment of the TLH. To transform a transport corridor to an economic corridor by stimulating two-way trade, it is important to have at least two economic agglomerations on both sides of the route.[7] The vast potential of Myanmar and the North Eastern Region of India can only be explored through a series of pragmatic policies to remove various bottlenecks.

Second, Myanmar is the largest beneficiary of the TLH and its extension routes, reflecting that most of its original alignment is in its territory. Thailand is the second beneficiary, while the impacts on India are positive but limited in scale. As mentioned above, developing the TLH as a transport corridor is not sufficient to generate bottom-line benefits to Northeast India.

[7] A similar argument can be found in ERIA (2010), claiming that, amongst the three economic corridors in the GMS, the Southern Economic Corridor would generate the largest economic impact because of its having Bangkok and Ho Chi Minh City on both sides of the route.

Third, although the additional impacts caused by the northern and southern extension routes are similar in terms of the total amount, the distributional implication differs substantially. If we compare them only in terms of the expected economic impacts, Myanmar would prefer the northern extension route and others prefer the southern extension route.

Fourth, developing a transport corridor in general will have positive economic impacts on the regions along the route at the expense of other parts of the country or regions. To pursue both economic growth and the narrowing of development gaps, transport corridors need to be designed carefully or with proper redistribution policy measures if necessary. Otherwise, uneven economic impacts may cause unnecessary conflicts in the region or even within a country.

Fifth, the economic impacts will be larger when the degree of improvement in road infrastructure is larger. This implication has two aspects. The lower the quality of the original road, that is, the lower the level of economic development, the larger the potential to enjoy positive economic regional impacts. The large economic impact induced by the northern extension route is probably because it passes through Shan State of Myanmar where economic development is still in an early stage, reflecting weak connectivity to neighbouring countries. The other aspect is drawn from the comparison between S4a and S4b, i.e., that the larger the improvement in the road quality is, the larger the expected economic impacts are. In both cases, the degree of improvement in road infrastructure depends on the size of the investment. The northern extension route will require larger investment because of its inferior condition. In contrast, the southern extension route which aligns with GMS economic corridors, has already been better developed. Similarly, constructing a highway quality road requires bigger investment than constructing a standard road.

Given the relatively fragile security condition in some parts of Myanmar and India, it is important for policymakers to consider distributional consequences of corridor development in addition to usual concerns on total return on investment. As discussed above, the country-wise distribution of the expected economic impact would differ significantly by the choice of the eastward extension routes. In this context, it is very reasonable for Thailand to assist Myanmar to upgrade road infrastructure along the Thai side of the TLH, because it is expected to generate mutual economic benefits. This is also true for India in its assistance to develop the Kalewa–Yargyi section of the TLH.

Regarding the northern extension route, since Myanmar is the only expected beneficiary, it might be difficult to expect bilateral assistance from neighbouring countries, as those donors need to pay close attention to the return on investment. In addition, it might be difficult to expect assistance from ADB, as the route is not designated as a part of the GMS Economic Corridors. It might be possible if the countries concerned shared a common vision to develop a second East–West Economic Corridor for the remaining less-developed regions, namely Shan State of Myanmar, the northern provinces in Lao PDR, and northwestern parts of Viet Nam. In the recent review of the configuration of the GMS economic corridors, ADB (2018a) identifies several subcorridors in the NSEC based on an extensive assessment of the whole system of the GMS Economic Corridors (ADB 2018b-h). Despite its timely and promising progress, the connectivity amongst subcorridors of the NSEC seems to be weak because of the lack of a route, which skews them in an east–west direction. Developing the northern extension route of the TLH as a second East–West Corridor would enhance the NSEC subcorridors by generating synergy from having multiple trade route choices.[8]

[8] In this direction, the relationship between the GMS and India may become a bottleneck.

Appendix to Chapter 6. System of IDE–GSM[9]

A1. Introduction

This technical appendix shows an overview of Geographical Simulation Model developed by the Japan External Trade Organization's Institute of Developing Economies (IDE–GSM). IDE–GSM has several unique features, such as subnational analysis with industrial classifications, multimodal choice, evaluating the economic impact of infrastructure improvements, free-trade agreements (FTAs), and trade facilitation measures. Such a broad scope of analysis comes from its model and data. The model is based on spatial economics, which can capture the concentration of households and firms such as clustering of suppliers and urbanisation, which are essential issues in most of the developing countries, particularly in Asia (Krugman 1991, Fujita et al. 1999). The data include detailed subnational gross regional domestic product (GRDP) by industry in Asia with the rest of the world, and there are more than 3,000 regions over 98 countries/economies, with 71 countries constituting the rest of the world. All the regions and countries are on the transport networks by road, railway, ship, and air, if they exist. With such data, IDE–GSM enables evaluating regional connectivity in improved physical infrastructure, such as new roads and bridges for missing links, and upgrading of existing roads, and in non-physical infrastructure such as trade facilitation measures, harmonisation of custom procedures, and reductions in administrative procedures for trades.

The main objective of IDE–GSM is to analyse regional dynamics in population and economic growth with and without specific infrastructure projects. IDE–GSM can prioritise various infrastructure development projects and offer an objective evaluation tool for policy recommendation in infrastructure development.

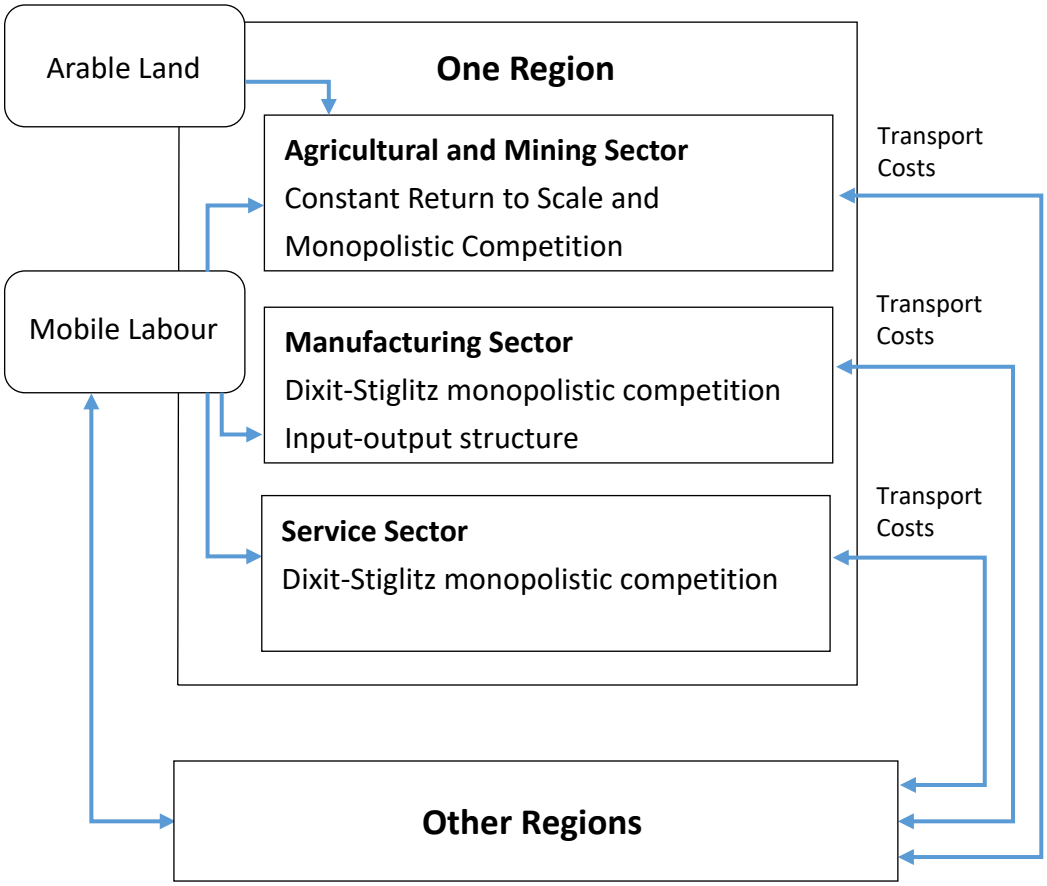
The analysis typically shows the difference between deploying and forgoing projects; in other words, with scenarios and benchmark case. This makes it easy to compare the scenarios, namely, development projects, with the aggregate showing the best possible combination.

[9] This technical appendix was prepared by Mr. Satoru Kumagai of IDE–JETRO, the principle developer of the IDE/ERIA–GSM, in order to facilitate the understanding of the simulation results presented in Chapter 6.

A2. The model[10]

Our model is multiregional and multisectoral.[11] It features agriculture and mining, five manufacturing sectors, and the service sector. Our model accommodates worker mobility within countries and between sectors.

Figure A1. Basic Structure of the Model in the Simulation



Source: Authors.

[10] It is a modified version of Kumagai and Isono (2011).
[11] For other simulation analysis based on New Economic Geography, see Teixeira (2006) and Robert et al. (2012).

The theoretical foundation follows Puga and Venables (1996), which captures the New Economic Geography's multisector and country general equilibrium. Therefore, the explanation below mainly pertains to equations in equilibrium. However, it is noteworthy that our model differs from that in Puga and Venables (1996) in specifications of the agricultural sector, which explicitly incorporate land size in its production and keep its technology as constant returns to scale.[12]

All products in the three sectors are tradable. The transport cost is assumed to be an iceberg type. That is, if one unit of a good is sent from one area to another, a good with less than one portion arrives. Depending on the loss, the supplier sets a higher price. The increase in price compared to that of the producer place is considered as the transport cost. Transport costs within the same area are considered negligible.

This simulation model determines the following regional variables: nominal wage rates in three sectors; land rent; regional income; regional expenditure on manufactured goods, the price index of three sectors; average real wage rates in three sectors; population share of a location in a country; and population shares of a sector in three industries within one location.

The agricultural and mining sector assume monopolistic competition with constant returns to scale technology and Armington's assumptions. The manufacturing and service industries use a Dixit–Stiglitz-type monopolistic competition and increase returns to scale technology. While an input–output linkage is assumed in the manufacturing industry, no linkage is assumed in the service industry.

Regional incomes in the New Economic Geography model correspond to regional GDPs in our simulations. Assuming that revenues from land at location *r* belong to households at location *r*, GDP at location *r* is expressed as follows:

$$Y_i = \sum_{J \in \{5 \text{ manufacturing industries,services}\}} w_{Ji} L_{Ji} + \sum_{H \in \{\text{agriculture, mining}\}} p_{Hi} f_{Hi} + TA_i$$

where w_{Ji} is the nominal wage rates in manufacturing and the services sector at location *i*, and L_{Ji} is the labour input of manufacturing and the services sector at location *i*, p_{Hi} is the price

[12] For detailed derivations, see Puga and Venables (1996) and Fujita et al. (1999).

of an agricultural/mining product at location *i*, $f_{Hi}$is agricultural/mining products at location *i*, respectively. TA_i is the redistributed tariff revenue at location *i*.

The price indices of agricultural/mining goods, manufactured goods, and services products at location *i* are expressed as follows:

$$G_{H,i}^{-(\sigma_A-1)} = \sum_{j=1}^{R}\left[A_{Hj}^{-1}\alpha_H^{-1}\left(\frac{F_{Hj}}{L_{Aj}}\right)^{-(1-\alpha_H)} w_{Hj}T_H(j,i)\right]^{-(\sigma_H-1)}$$

$$G_{ki}^{-(\sigma_k-1)} = \left(\frac{\sigma_k-1}{\sigma_k}\right)^{\sigma_k}\sum_{j=1}^{R} L_{kj}\,A_{kj}^{\sigma_k}w_{kj}^{1-\sigma_k(\alpha_k)}G_{kj}^{-(1-\alpha_k)\sigma_k}T_k(j,i)^{-(\sigma_k-1)}, and$$

$$G_{Si}^{-(\sigma_S-1)} = \left(\frac{\sigma_S}{\sigma_S-1}\right)^{-(\sigma_S-1)}\frac{1}{\mu_S}\sum_{j=1}^{R} L_{Sj}\left(A_{Sj}\right)^{\sigma_S}\left(w_{Sj}\right)^{-(\sigma_S-1)}T_S(j,i)^{-(\sigma_S-1)}.$$

Where F_{Hi} is the land used for the production at location *i*, α_I is the labour input share for production, μ_I is the consumption share of products, A_{Ii} is productivity parameter for location *i*, $T_I(j,i)$ stands for the iceberg transport costs from location *j* to location *i*, and $\sigma_I$is the elasticity of substitution between any two differentiated manufactured goods for agricultural, manufactured and services goods, respectively. Nominal wages in the agricultural, manufacturing, and services sectors at location *i* are expressed as follows:

$$w_{Hi} = A_{Hi}\alpha_H\left(\frac{F_{Hi}}{L_{Hi}}\right)^{1-\alpha_H} p_{Hi},$$

$$w_{ki} = \left\{\frac{\sigma_k-1}{\sigma_k}A_{ki}\left[\alpha_k\sum_{j=1}^{R}E_{kj}\,G_{kj}^{\sigma_k-1}T_k(i,j)^{1-\sigma_k}\right]^{1/\sigma_k} G_{ki}^{-\beta}\right\}^{1/(1-\beta)}, and$$

$$w_{Si} = \left(\frac{\sigma_S - 1}{\sigma_S}\right)^{1-1/\sigma_S} A_{Si} \left[\sum_{j=1}^{R} Y_j \, G_{Sj}^{\sigma_S - 1} T_S(i,j)^{1-\sigma_S}\right]^{1/\sigma_S}.$$

The variables are decided using a given configuration of labour. Derived gross regional domestic product (GRDP), nominal wage rates, and price indexes are used to determine labour's decision on a working sector and place. The dynamics for labour to decide on a specific sector within a location are expressed as follows:

$$\dot{\lambda}_{I,i} = \gamma_I \left(\frac{\omega_{Ii}}{\omega_i} - 1\right) \lambda_{I,i}, I \in \{\text{the list of all industries}\}$$

where $\dot{\lambda_{I,\iota}}$ is the change in labour (population) share for a sector within a location, γ_I is the parameter used to determine the speed of switching jobs within a location, $\omega_{I,i}$ is the real wage rate of any sector at location *r*, ω_i is the average real wage rate at location *i*, and $\lambda_{I,i}$ is the labour share for a sector in the location.

The dynamics of labour migration between regions is expressed as follows:

$$\dot{\lambda_\iota} = \gamma_L \left(\frac{\omega_i}{\overline{\omega}_C} - 1\right) \lambda_i$$

where $\dot{\lambda_\iota}$ is the change in the labour share of a location in a country, γ_L is the parameter for determining the speed of migration between locations, λ_i is the population share of a location in a country, and $\overline{\omega}_C$ shows the average real wage rate of the country. ω_i shows the real wage rate of a location and is specified as follows:

$$\omega_i = \frac{Y_i / \sum_{I \in \{the\ list\ of\ all\ industries\}} L_{Ii}}{\prod_{I \in \{the\ list\ of all\ industries\}} G_{Ii}^{\mu_I}}.$$

where μ_I shows the consumption share of each industry.

A3. Data

Data for IDE/GSM cover 98 countries/economies divided into 3,065 regions and we utilise country data for 71 rest-of-the-world countries/economies. In total, we have 3,136 regions in the model. Primarily based on official statistics, we derive GRDP for the agricultural sector and mining sector, five manufacturing sectors, and the service sector for 2010. The five manufacturing sectors are automotive (Auto), electronics and electric appliances (E&E), garment and textile (Textile), food processing (FoodProc) and other manufacturing (OtherMfg). Population and area of arable land for each region are compiled from multiple statistical sources. The administrative unit adopted in the simulation is one level or two levels below the national level. For instance, the administrative unit is one level below the national level for Cambodia, Japan, Republic of Korea, Lao PDR, Malaysia, the Philippines, Taiwan, Thailand, and Viet Nam. For Bangladesh, China, India, Indonesia, and Myanmar, the administrative unit is two levels below the national level. Brunei Darussalam, Hong Kong, Macao, and Singapore are treated as one unit. For the US, the administrative unit is state level, while for the European Union, the administrative unit is Nomenclature of Units for Territorial Statistics (NUTS)-2 level in this version of IDE–GSM.

A4. Parameters

Our transport cost comprises physical transport costs, time costs, tariff rates, and non-tariff barriers (TNTBs). Physical transport costs are a function of distance travelled, travel speed per hour, physical travel cost per km, and holding cost for domestic/international transshipment at border crossings, stations, ports, or airports. Time costs depend on travel distance, travel speed per hour, time cost per hour, holding time for domestic/international transshipment at border crossings, stations, ports, or airports. Travel speed per hour is provided in the next section. These parameters are derived from JETRO's 2008 ASEAN Logistics Network Map, and by estimating the model of the firm-level transport mode choice with the 'Establishment Survey on Innovation and Production Network'[13] for 2008 and 2009, which includes manufacturers in Indonesia, the Philippines, Thailand, and Viet Nam. Based on these parameters, we calculate the sum of physical transport and time costs for all possible routes between the two regions. Employing the

[13] This survey was conducted by ERIA.

Floyd–Warshall algorithm for determining the optimal route and transport mode for each region and good, we obtain the sum of physical transport and time costs for each pairing of two regions by industry (Cormen et al., 2001).

We assume that firms choose a transportation mode from amongst air, sea, and truck:

$$V_M \equiv U_M + \varepsilon_M = \alpha \cdot Abroad_{ji} + \sum_s \beta_s^M u_s \ln d_{ji} + \sum_k \gamma_k^M v_k + \varepsilon_M ,$$

where ε_M denotes unobservable mode characteristics, while $Abroad_{ji}$ takes unity if regions *i* and *j* belong to different countries and zero otherwise; d_{ji} is the geographical distance between regions *i* and *j*. u_s is industry dummy. When ε_M is independent and follows the identical type I extreme value distribution across modes, the probability that the firm chooses mode *M* is given by:

$$\Pr\left(Y_i = M \mid Abroad_{ji}, \ln d_{ji}\right) = \frac{e^{U_M}}{1 + e^{U_{Air}} + e^{U_{Truck}} + e^{U_{Sea}}}$$

for M = Air, Sea, Truck. (1)

The coefficients are estimated by maximum likelihood procedures. In other words, a multinomial logit (MNL) model is used to estimate the probability that a firm chooses one of the three transportation modes: air, sea, and truck. In the following, the truck is a base mode.

The geographical distance affects firms' modal choices through not only a per-unit physical charge for shipments but also shipping time costs due to the nature of the demand for shipments. Transportation time has a larger influence on the price of products that decay rapidly over time; for example, time-sensitive products include perishable goods (fresh vegetables), new information goods (newspapers) and specialised intermediate inputs (parts for Just-In-Time production). Lengthy shipping time may lead to a complete loss of commercial opportunity for products and their components, which is more likely to be significant for goods with a rapid product life cycle and high demand volatility. Given the value of timeliness in selling a product,

time costs are small for timely shipments (short transport time). In other words, time costs will be the highest for shipping by sea and the lowest for shipping by air. On the other hand, the physical transport costs will be highest for air and the lowest for the sea. Truck transport will have a medium level of costs compared to air and sea transport. As a result, the coefficient for the geographical distance represents the average difference in the sum of the above two kinds of transport costs (time and physical transportation) per distance between truck and air/sea.

Furthermore, three points are noteworthy. Firstly, as mentioned above, shipping time costs obviously differ amongst industries. Such differences are controlled by introducing the intercepts of industry dummy variables (u_s) with distance variables. Secondly, the level of port infrastructure is obviously different amongst countries. This yields different impacts of the aforementioned two kinds of transport costs. To control such differences amongst countries in which reporting firms locate, we introduce country dummy variables (v_k). Lastly, qualitative differences between intra- and international transactions are controlled by introducing a binary variable (*Abroad*), taking unity if transactions are international and zero if otherwise.

Our main data source is the Establishment Survey on Innovation and Production Network for selected manufacturing firms in four countries in East Asia for 2008 and 2009 (Table 1). The four countries covered in the survey were Indonesia, the Philippines, Thailand and Viet Nam. The sample population is restricted to selected manufacturing hubs in each country (JABODETABEK area, i.e., Jakarta, Bogor, Depok, Tangerang, and Bekasi, for Indonesia; CALABARZON area, i.e., Cavite, Laguna, Batangas, Rizal, and Quezon, for the Philippines; Greater Bangkok area for Thailand; and Ha Noi area and Ho Chi Minh City for Viet Nam). This dataset includes information on the mode of transport that each firm chooses in supplying its main product and sourcing its main intermediate inputs. From there, the products' origin and destination can also be identified. In our analysis, however, the combination of origin and destination is restricted to one accessible by land transportation.

Table A1. The Combination of Trading Partners in the Dataset

	Indonesia	Philippines	Thailand	Viet Nam
Cambodia				1
China			6	52
Hong Kong				5
Indonesia	449			
Malaysia				2
Myanmar			1	
Philippines		254		
Singapore				2
Thailand			151	7
Viet Nam				382

Source: The Establishment Survey on Innovation and Production Network.

Let us take a brief look at a firms' choice of transportation mode. Table 1 reports the combination of trading partners in our dataset. There are three noteworthy points here. Firstly, as mentioned above, firms in the Philippines and Indonesia are restricted to the ones with intra-national transactions, although most of the firms in the other countries in our dataset are also engaged in intra-national transactions. Secondly, there are a relatively large number of Vietnamese firms trading with China. Third, Table 2 shows the transportation mode by the location of firms, indicating that most of our sample firms tend to choose trucks. Intuitively, this may be consistent with the first fact that most of the firms trade domestically.

Table A2. The Chosen Transportation Mode by Location of Firms

	Indonesia	Philippines	Thailand	Viet Nam
Air	19	7	2	11
Sea	17	11	6	51
Truck	413	236	150	389

Source: The Establishment Survey on Innovation and Production Network.

The MNL result is provided in Table 3. There are three noteworthy points. Firstly, in trading with partners abroad, firms are likely to choose air or sea. Secondly, the coefficients for distance are estimated to be significantly positive, indicating that the larger the distance between trading partners, the more likely the firms are to choose air or sea. Specifically, this result implies that the two kinds of transport costs per distance are lower in air and sea than by truck. Thirdly, the intercept term of distance in machinery industries has a significantly positive coefficient for air. This result may indicate a large amount of time costs in the machinery industry.

Table A3. Result of Multinomial Logit Analysis

Truck as a basis	Air			Sea		
	Coef.		S.D.	Coef.		S.D.
Abroad	3.573	***	0.736	2.915	***	0.428
ln Distance (Food as a basis)	0.444	***	0.170	1.268	***	0.167
*Textiles	0.104		0.126	-0.151		0.094
*Machineries	0.300	**	0.135	0.112		0.086
*Automobile	0.201		0.174	-0.104		0.154
*Others	0.148		0.106	-0.068		0.066
Constant	-5.711	***	0.760	-9.621	***	0.993
Country dummy: Indonesia as a basis						
Philippines	-0.336		0.470	0.364		0.446
Thailand	-2.239	**	0.904	-0.794		0.624
Viet Nam	-2.483	***	0.683	-0.437		0.419
Statistics						
Observations	1,312					
Pseudo R-squared	0.3407					
Log-likelihood	-321.5					

*Note:****, **, and * show 1%, 5%, and 10% significance, respectively.
Source: Authors' calculation.

Lastly, we conduct some simulations to get a more intuitive picture of the transportation modal choice. Specifically, employing our estimators, we calculate the distance between trading partners in which the two transportation modes become indifferent in terms of their probability. For example, suppose that a firm in the food industry in Bangkok trades with a partner located in another city. Our calculation reveals how far the city is from Bangkok if the probability of choosing air/sea is equal to that of choosing truck transport. In the calculation, we set *Abroad* to the value of 1, i.e., international transactions. The results are reported in Table 4. In Bangkok,

for example, firms in the machinery industry choose air or sea if their trading partners are located more than 400 km away. On the other hand, firms in the food industry basically only use the truck.

Table A4. Probability Equivalent Distance with Truck (km): Domestic and International Transportation from Bangkok

	Domestic		International	
	Air	**Sea**	**Air**	**Sea**
Food	60,300,000	3,699	19,254	371
Textiles	2,022,900	11,218	2,968	825
Machineries	44,009	1,899	361	229
Automobile	225,394	7,693	886	628
Others	684,540	5,909	1,634	520

Source: Authors' calculation based on the MNL result in Table 3.

We estimate some parameters necessary for calculating transport costs. Specifically, we estimate transportation speed and holding time. Our strategy for estimating those is very straightforward and simple. We regress the following equation:

$$Time_{ij}^{M} = \rho_0 + \rho_1 Abroad_{ij}^{M} + \rho_2 Distance_{ij}^{M} + \varepsilon_{ij}^{M}.$$

The coefficients $\rho_0^M$and ρ_1^M represent mode M's holding time in domestic transportation and its additional time in international transportation, respectively. The inverse of ρ_2^M indicates the average transportation speed in mode M. We use the same data as in the previous section. However, the estimation in this section does not require us to restrict our sample to firms with transactions between regions accessible by truck.

The OLS regression results are reported in Table 5. Although some of the holding time coefficients, i.e., ρ_0^M and ρ_1^M, are estimated as being insignificant, their magnitude is reasonable enough. As for the distance coefficient, its magnitude in sea and truck is reasonable, but that in

the air is disappointing and too far from the intuitive speed, say, around 800 km/h. One possible reason is that 'time' in our dataset always includes land transportation time to the airport. This will cause the air transportation speed to be understated.

Table A5. Results of OLS Regression: Holding Time and Transportation Speed

	Air	Sea	Truck
Estimation Results			
Abroad	9.010	11.671	10.979***
	[8.350]	[13.320]	[2.440]
Distance	0.018*	0.068***	0.026***
	[0.010]	[0.018]	[0.002]
Constant	6.123	3.301	2.245***
	[7.940]	[13.099]	[0.739]
Holding Time (hours)			
Domestic	9.010	11.671	10.979
International	15.133	14.972	13.224
Speed (km/hour)	55.556	14.706	38.462
Observations	51	34	754
R-squared	0.1225	0.3698	0.1772

OLS = ordinary least squares.
Notes: ***, **, and * show 1%, 5%, and 10% significance, respectively. A dependent variable is transportation time.
Source: Authors' calculation.

We specify a simple linear transport cost function, which consists of physical transport costs and time costs. We assume the behaviour of the representative firm for each industry as follows:

- A representative firm in the machinery industry will make a choice between the truck and air transport and choose the mode with a higher probability in (1).
- A representative firm in the other industries will choose between truck and sea transport and choose the mode with the higher probability in (1).

Specifically, the transport cost in the industry *s* by mode *M* between regions *i* and *j* is assumed to be expressed as:

$$C_{ij}^{s,M} = \underbrace{\left[\left(\frac{dist_{ij}}{Speed_M}\right) + \left(1 - Abroad_{ij}\right) \times ttrans_M^{Dom} + Abroad_{ij} \times ttrans_M^{Intl}\right]}_{Total\ \ Transport\ \ Time} \times ctime_s$$
$$+ \underbrace{dist_{ij} \times cdist_M}_{Physical\ \ Transport\ \ Cost} + \underbrace{\left(1 - Abroad_{ij}\right) \times ctrans_M^{Dom} + Abroad_{ij} \times ctrans_M^{Intl}}_{Physical\ \ Transshipment\ \ Cost} \quad (2)$$

where $dist_{ij}$ is the travel distance between regions *i* and *j*, $speed_M$ is travel speed per one hour by mode *M*, $cdist_M$ is physical travel cost per 1 km by mode *M*, and $ctime_s$ is time cost per one hour perceived by firms in industry *s*. The parameters $ttrans_M^{Dom}$ and $ctrans_M^{Dom}$ are the holding time and cost, respectively, for domestic transshipment at ports or airports. Similarly, $ttrans_M^{Intl}$ and $ctrans_M^{Intl}$ are the holding time and cost, respectively, for international transshipment at borders, ports, or airports.

The parameters in the transport function are determined as follows. Firstly, by using the parameters obtained from the results of estimation and borrowing some parameters from JETRO (2008), we set some of the parameters in the transport function as in Table 6. Notice that our estimates of $Speed_{Air}$ and $ttrans_{Air}^{Intl}$ in Table 6 went beyond our expectations. Thus, we set $Speed_{Air}$ at the usual level (800 km/h) and we made $ttrans_{Air}^{Intl}$ consistent with JETRO (2008).

Secondly, after substituting those parameters for the equation (2) under domestic transportation, $C_{ij}^{s,M}$ becomes a function of $dist_{ij}$ and $ctime_s$. To meet the above-mentioned assumptions on firms' behaviour, we add the following conditions:

Table A6. Parameters in the Transport Cost Function

	Truck	Sea	Air	Unit	Source
$cdist_M$	1	0.24	45.2	US$/km	Map
$Speed_M$	38.5	14.7	800	km/hour	Table A5
$ttrans_M^{Dom}$	0	11.671	9.01	hours	Table A5
$ttrans_M^{Intl}$	13.224	14.972	12.813	hours	Table A5 & Map
$ctrans_M^{Dom}$	0	190	690	US$	Map
$ctrans_M^{Intl}$	500	N.A.	N.A.	US$	Map

Notes: Costs are for a 20-foot container. The parameter $ctrans_M^{Dom}$ is assumed to be half of the sum of border costs and transshipment costs in international transport from Bangkok to Ha Noi. The parameter $sttrans_M^{Dom}$ and $ctrans_M^{Dom}$ for sea and air include one-time loading at the origin and one-time unloading at the destination.
Source: Authors' estimation and JETRO (2008).

- The transport cost using trucks becomes the lowest amongst the three modes when $dist_{ij}$ is zero for each industry.
- If the transport cost is depicted as a function of $dist_{ij}$, a line is drawn by the function where truck intersects with it at only one point for air and sea for the machinery industry, and at only one point for the other industries with all non-negative $dist_{ij}$.

Under the probability equivalent (domestic) distances in Table 4, the transport cost $C^{s,Air}$ should be equal to $C^{s,Truck}$ in machineries, and $C^{s,Sea}$ should be equal to $C^{s,Truck}$ in the other industries. By using this equality, we calculate $ctime_s$ for each industry as in Table A7. The functions meet the above conditions.

Table A7. Time Costs per One Hour by Industry perceived by Firms (*ctimes*): US$/hour

	Food	Textile	Machineries	Automobile	Others
$ctime_s$	15.7	17.2	1,803.3	16.9	16.5

Source: Authors' calculation.

Thirdly, by substituting these parameters again, including $ctime_s$ and $ctrans_{\text{Truck}}^{Intl}$ under international transportation, $C_{ij}^{s,Truck}$ becomes a function of only $dist_{ij}$, and $C_{ij}^{s,M}$ for air and sea becomes a function of $dist_{ij}$ and $ctrans_{\text{M}}^{Intl}$. Then by using the probability equivalent (international) distances in Table A4 again, we can calculate $ctrans_{\text{Air}}^{Intl}$ and $ctrans_{\text{Sea}}^{Intl}$ for each industry. Lastly, $ctrans_{\text{Sea}}^{Intl}$ is uniquely set as the average amongst the other industries. These parameter values are reported in Table A8. The functions obtained also fulfil the above conditions.

Table A8. Costs for Transshipment in International Transport ($ctrans_M^{Intl}$): US$

	Truck	Sea	Air
$ctrans_M^{Intl}$	500	504.2	1,380.1

Source: Authors' calculation.

Additionally, $ttrans^{Dom}$ and speed of railway are estimated by the same dataset and the same estimating equation. Due to the minimal usage of railways in international transactions in the dataset, we adopted the same value for the time and cost of international transactions as in trucks from Table A9. Finally, we set the cost per km as half the value of road transport.[14]

Table A9. Parameters for Rail Transport

	Railway	Unit	Source
$cdist_M$	0.5	US$/km	Half of Truck
$Speed_M$	19.1	km/hour	Estimation
$ttrans_M^{Dom}$	2.733	hours	Estimation
$ttrans_M^{Intl}$	13.224	hours	Same as Truck
$ctrans_M^{Intl}$	500	US$	Same as Truck

Source: Authors' calculation.

The sum of tariff and TNTBs by countries is estimated by employing the 'log odds ratio approach', which is initiated by Head and Mayer (2000). Namely, we estimate the industry-level border barriers for each country (not each subnational region). This approach looks more appropriate than other approaches because the theoretical model underlying it is basically the same as our GSM. We estimate for the ratio of 'consumption of products from country *j* in country *i* (X_{ij})' to 'consumption of products from country *i* in country *i* (X_{ii})'. For brevity, we omit an industry subscript. Specifically, such a ratio is given by the following:

$$\frac{X_{ij}}{X_{ii}} = \left(\frac{n_j}{n_i}\right)\left(\frac{a_{ii}}{a_{ij}}\right)^{1-\sigma}\left(\frac{t_{ij}}{t_{ii}}\right)^{1-\sigma}\left(\frac{p_j}{p_i}\right)^{1-\sigma}$$

n, a, t, σ, and p represent the mass of varieties, a parameter on preference weight, transport costs, the elasticity of substitution across varieties, and product prices, respectively.

[14] JETRO (2008) offers an example where the cost per km for railways is 0.85 times that of trucks. However, it is only for the case when we ship a quantity that can be loaded onto a truck. Rail has much larger economies of scale than trucks in terms of shipping volume so some industries such as coal haulage incur much lower cost per tonne km. Therefore, we need to deduct this from the value in JETRO (2008).

To estimate this model with the available data, we assume the following. First, the mass of varieties is assumed to be related to the size of GDP. Second, we assume that the ratio of preference parameters is explained by linguistic commonality (*Language*), colonial relationship (*Colony*), and geographical contiguity (*Contiguity*). These variables are expressed as binary variables. Third, the transport costs are assumed to be expressed as the following.

$$\ln\left(\frac{t_{ij}}{t_{ii}}\right) = Border_i + \alpha \ln\left(\frac{Distance_{ij}}{Distance_{ii}}\right) + \beta \ln Cost_{ij}$$

$Border_{ij}$ shows the TNTB while $Distance_{ij}$ is the geographical distance between countries *i* and *j*. The domestic distance, i.e., $Distance_{ii}$, is computed as the following:

$$Distance_{ii} = \frac{2}{3}\sqrt{\frac{Area_i}{\pi}}$$

π and *Area* are circular constant and surface area, respectively. *Cost* is the sum of physical transport costs and time costs, of which computation is explained before. Last, product prices are assumed to be a function of wages, for which GDP per capita is used as a proxy.

Under these assumptions, the above equation can be rewritten as follows.

$$\ln\left(\frac{X_{ij}}{X_{ii}}\right) = \gamma_1 \ln\left(\frac{GDP_j}{GDP_i}\right) + \gamma_2 Language_{ij} + \gamma_1 Colony_{ij} + \gamma_3 Contiguity_{ij} + \gamma_4 \ln\left(\frac{Distance_{ij}}{Distance_{ii}}\right) + \gamma_5 \ln Cost_{ij} + \gamma_6 \ln\left(\frac{GDP\ per\ capita_j}{GDP\ per\ capita_i}\right) + u_i + \epsilon_{ij}$$

u_i shows fixed effects for country *i* and, from the theoretical point of view, the log value of the product between *Border* and (1−σ). Therefore, we compute the TNTB by employing the estimates for these fixed effects and the elasticity of substitution. The estimation is conducted

for agriculture, manufacturing, and services separately. In the case of manufacturing, we estimate the model by pooling the data for five sectors under controlling for sector fixed effects.

We estimate the above model for the year 2007. The data sources are as follows. The consumption data are obtained from the GTAP 8 Data Base. The data on GDP and GDP per capita are obtained from the World Development Indicator (World Bank). Those on geographical distance and three dummy variables on preferences are from CEPII database. With this methodology, we estimate industry-level fixed effects for 69 countries.

The estimation results by the ordinary least square (OLS) method are reported in Table 10. Almost all variables have significant coefficients with expected signs though the coefficients for GDP per capita ratio are positively significant in manufacturing and services. This estimation provides us the estimates on industry-level fixed effects for 69 countries. In order to obtain those in the other countries, we assume that those in each country are highly correlated with their GDP per capita and regress (log of) GDP per capita, in addition to industry dummy variables on the estimates of these fixed effects. The estimation results are the following.

Estimates on Fixed Effects = −17.797 + 1.245 * ln GDP per capita + 1.365 * Food

+ 2.555 * Textile + 2.052 * Electric Machinery + 1.569 * Automobile

+ 2.523 * Other Manufacturing − 1.149 * Services

The number of observations is 483, and the adjusted R-squared is 0.7386. The base for industry dummy variables is agriculture. Using the estimation results and the data on GDP per capita, we predict industry-level fixed effects for other 126 countries. As a result, we obtain those for 195 countries in total. Applying the elasticity of substitution to these estimates, we compute the tariff equivalent of TNTB.

Table A10. OLS Results

	Agriculture	Manufacturing	Services
GDP ratio	0.968***	1.346***	0.677***
	(0.020)	(0.011)	(0.008)
Language	1.115***	0.684***	0.146***
	(0.126)	(0.070)	(0.048)
Colony	0.508**	0.173	0.268***
	(0.204)	(0.114)	(0.078)
Contiguity	1.821***	1.090***	0.464***
	(0.186)	(0.103)	(0.071)
Distance ratio	-0.555***	-1.000***	-0.016
	(0.086)	(0.036)	(0.038)
Cost	-0.743***	-0.576***	-0.459***
	(0.194)	(0.206)	(0.068)
GDP per capita ratio	-0.593***	0.134***	0.301***
	(0.024)	(0.013)	(0.009)
Sector Dummy (Base: Automobile)			
Food		-0.207***	
		(0.064)	
Textile		1.016***	
		(0.070)	
Electric Machinery		0.491***	
		(0.053)	
Other Manufacturing		0.981***	
		(0.053)	
Number of Observations	4,592	23,460	4,692
Adjusted R-squared	0.6076	0.6192	0.8508

GDP = gross domestic product, OLS = ordinary least squares.

Notes: *** and ** indicate 1% and 5% significance, respectively. In the parenthesis is the robust standard error. All specifications include import country dummy variables.

Source: Authors' calculation.

Next, we obtain NTBs by subtracting tariff rates from TNTB. Our data source for tariff rates is the World Integrated Trade Solution, particularly Trade Analysis and Information System raw data. For each trading pair, we aggregate the lowest tariff rates amongst all available tariff schemes at

the tariff-line level into single tariff rates for each industry by taking a simple average. Available tariff schemes include multilateral FTAs (e.g., ASEAN+1 FTAs) and bilateral FTAs (e.g., China–Singapore FTA) alongside other schemes such as the Generalised System of Preferences. Moreover, we somewhat consider the gradual tariff elimination schedule in six ASEAN + 1 FTAs in addition to the ASEAN free trade area (AFTA). For example, in the case of ASEAN–Japan Comprehensive Economic Partnership (AJCEP), tariff rates amongst member countries began to gradually decline from 2008. Tariff rates in Japan and ASEAN forerunners against members are for simplicity assumed to linearly decrease to become final rates in 2018, and those for ASEAN latecomers decrease linearly to final rates in 2026.[15] 'Final rates' takes into account the final rates set in each agreement. Namely, even if tariff rates for a product were not zero in 2009, they are set to zero in 2026 if they involve preferential products. We obtain information about whether each product finally attains zero rates in ASEAN + 1 FTAs from the FTA database developed in ERIA. We set final rates for all products in the case of AFTA at zero due to the lack of such information. As a result, we obtain separately (bilateral) tariff rates and (importer-specific) NTBs by industry on a tariff-equivalent basis. Finally, our total transport costs are the product of the sum of physical transport and time costs and the sum of tariff rates and NTBs.

Another important setting on transport cost is the 'cumulation rule' in multilateral FTAs, particularly ASEAN+1 FTAs and AFTA. There are several types of cumulation rules: bilateral, diagonal, and full. Some scholarly studies try to quantify the trade creation effect of diagonal cumulation. Particularly in Hayakawa (2014), which examines Thai exports to Japan, the tariff equivalent of the diagonal cumulation rule in the ASEAN–Japan Comprehensive Economic Partnership is estimated at around 3%. Based on this estimate, we formalise the effect of the diagonal cumulation rule amongst ASEAN + 1 FTAs as 3% below NTBs in trading amongst members after each FTA's entry into force.

We adopt the elasticity of substitution for each sector mainly from Hummels (1999) and estimate it for services, as 3.8 for Agriculture, 5.1 for FoodProc, 8.4 for Textile, 6.0 for E&E, 4.0 for Auto, 5.3 for OtherMfg, and 3.0 for services. Estimates for the elasticity of services are obtained from the estimation of the usual gravity equation for services trade, including as independent variables importer's GDP, exporter's GDP, importer's corporate tax, geographical distance

[15] We do not insert the exact schedule of gradual tariff reductions due to the lack of ready-made information.

between countries, a dummy for free trade agreements, a linguistic commonality dummy, and the colonial dummy. The elasticity for services is obtained from the transformation of a coefficient for the corporate tax because it changes prices of services directly. For this estimation, we mainly employ data from 'Organisation for Economic Co-operation and Development Statistics on International Trade in Services.'

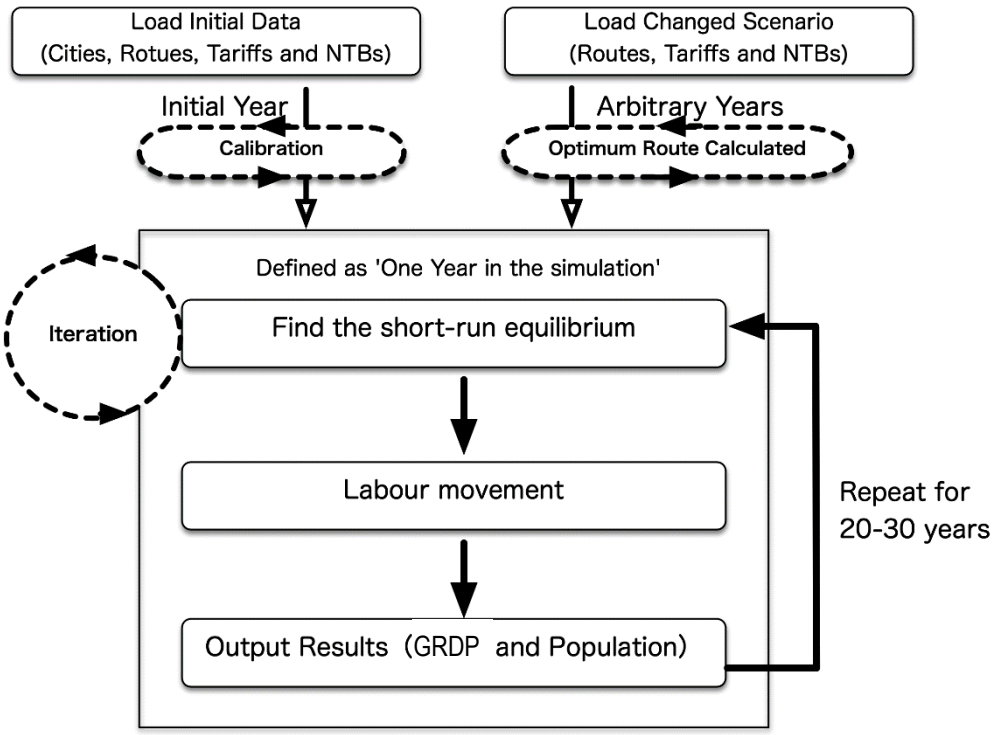
Parameters β, μ, and ρ are obtained as follows. The consumption share of consumers by industry (μ) is uniformly determined for the entire region in the model. It would be more realistic to change the share by country or region, but insufficiently reliable consumption data makes this impossible. Therefore, the consumption share by industry is set to be identical to the industry's share of GDP for the entire region as follows: 0.040 for agriculture, 0.033 for FoodProc, 0.018 for Textile, 0.026 for E&E, 0.020 for Auto, 0.172 for OtherMfg, and 0.687 for services. The single labour input share for each industry ($1 - \beta$) is uniformly applied for the entire region and the entire time period in the model. Although it may differ amongst countries/regions and across years, we use an 'average' value, in this case that of Thailand as a country in the middle stage of economic development, which is again taken from the Asian International Input–Output Table 2005 by IDE and 'JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania 2013'[16]. As a result, the parameter of β is 0.39 for agriculture, 0.39 for FoodProc, 0.36 for Textile, 0.44 for E&E, 0.43 for Auto, 0.41 for OtherMfg, and 0.0 for services.

A5. Simulation Procedures

This section explains our simulation procedures, which are depicted in Figure 2. First, with given distributions of employment and regional GDP by sector and regions, short-run equilibrium is obtained. The equilibrium nominal wages, price indices, output, and GDP by region are calculated.

[16] This is an annual survey conducted by JETRO, known as 'Zai Asia Oceania Nikkei Kigyo Jittai Chosa' in Japanese.

Figure A2. Simulation Procedure



NTB = nontariff barrier, GRDP = gross regional domestic product.

Source: Authors.

Observing the achieved equilibrium, workers migrate amongst regions. Workers migrate from the regions with lower real wages to the regions with higher real wages. Within a region, workers move from lower-wage industries to higher-wage industries. One thing we need to note is that the process of this adjustment is gradual, and the real wages between regions and industries are not equalised immediately.

After the migration process, we obtain the new distribution of workers and economic activities. With this new distribution and predicted population growth, the next short-run equilibrium is obtained for a following year, and we observe the migration process again. These computations are iterated typically for 20 years from 2010 to 2030.

A6. Calculation of economic impacts

To calculate the economic impacts of specific trade and transport facilitation measures (TTFMs), we take the differences of GRDPs between the baseline scenario and a specific scenario with TTFMs. The baseline scenario contains minimal additional infrastructure development after 2010. On the other hand, the alternative scenario contains specific TTFMs in 2015, for example, according to the information on the future implementation plans of TTFMs.

We compare the GRDPs between two scenarios typically in 2030. If the GRDP of a region under the scenario with TTFMs is higher (lower) than that under the baseline scenario, we regard this surplus (deficit) as the positive (negative) economic impacts by the TTFMs.

A merit of calculation of the economic impacts by taking the difference between scenarios is the stability of the results. The economic indices forecasted by a simulation depend on various parameters while the differences of the economic indices are quite stable regardless of the changes of the parameters.

A7. Making scenarios

(1) Baseline scenario

The following assumptions are maintained in the baseline scenario:

- The national population of each country is assumed to increase at the rate forecast by the UN Population Division until the year 2030.
- International migration is prohibited.
- Tariff and non-tariff barriers are changing based on FTA/EPAs currently in effect.
- We give different exogenous growth rates on technological parameters for each country.

The final point should be noted precisely. In IDE–GSM, each industry in each city has a different productivity parameter '*A*'. We can interpret this parameter *A* containing the following factors:

- Education/skill level;
- Logistics infrastructure within the region;
- Communications infrastructure within the region;
- Electricity and water supply;

- Firm equipment; and
- Utilisation ratio/efficiency of infrastructure and equipment.

We give different exogenous growth rates for the productivity parameter '*A*' for each country to replicate the GDP growth trend from 2010 to 2023, which is estimated and provided in the World Economic Outlook by the International Monetary Fund. After 2023, we gradually reduce the calibrated growth rates of technological parameters to half in 20 years.

In the baseline scenario, transport settings are unchanged throughout the simulation period 2010–30, except for some minor updates in 2015. For instance, the average speed of land traffic is set at 38.5 km/h. However, the speed on roads through mountainous areas is set to half (19.25 km/h), and certain roads are set at 60 km/h—namely, roads in Thailand outside traffic-congested metropolitan Bangkok, the road from the border of Thailand to Singapore through the west coast of Malaysia, and roads No. 9 and No. 13 from Vientiane to Pakse in the Lao PDR. The average speed for sea traffic is set at 14.7 km/h between international class ports and at half that on other routes. Average air traffic speed is set at 800 km/h between primary airports of each country and at 400 km/h on other routes. Average railway traffic speed is set at 19.1 km/h.

(2) Trade and transport facilitation measures: TTFMs

We have various trade and transport costs in the model. By changing these costs, we can replicate the TTFMs in the model as follows:

- Upgrading of the road: increase in the average speed of cars for a road.
- Customs Facilitation: reduction of the time and money costs at the national borders.
- FTA/RTA: reduction of the import tariffs between member countries and reduce the NTBs with taking into account the 'cumulation' effect of FTA/RTA.
- Overall improvements in business environments: reduction of NTBs for a country.

(3) Special economic zone and a free trade zone

In the model, each industry in each city has a different productivity parameter *A*. The increase in this regional productivity captures the improvements in investment climates included in *A*. Such practical examples include the establishment of special economic zone/free trade zones.

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Chapter 7

Policy Recommendation

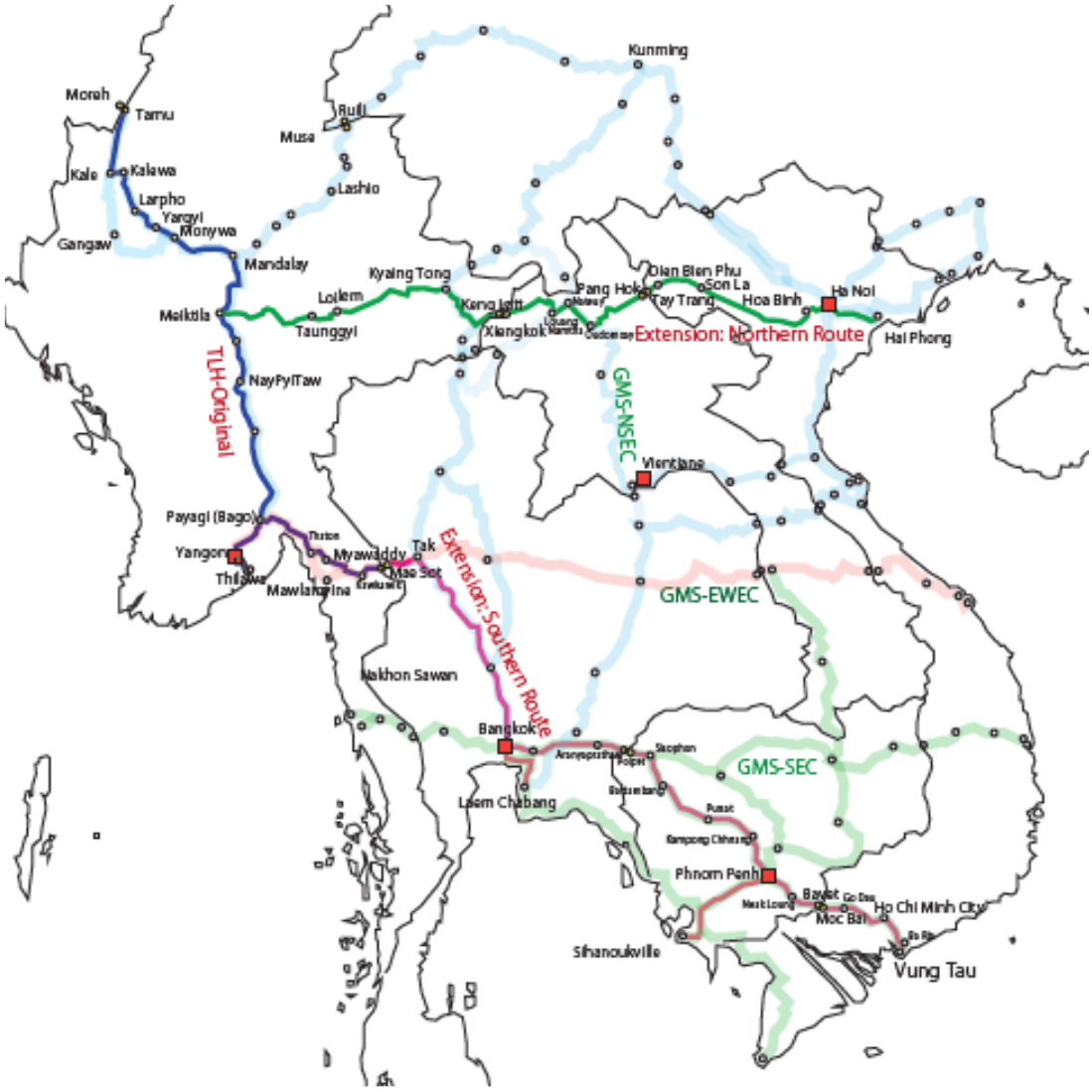
7.1. The Trilateral Highway and Its Eastward Extension: A Stocktaking

Greater connectivity between India and ASEAN has long been both an economic and strategic objective for the ASEAN–India partnership. The TLH was first conceived at the Trilateral Ministerial Meeting on Transport Linkages in April 2002, where India, Myanmar, and Thailand agreed to make all efforts to establish trilateral connectivity by 2016. Along the TLH, 'there are two border crossings, four customs check points, three international time zones, three customs EDI systems, two different vehicle driving standards and three different motor vehicle laws. Challenge is to reach convergence in standards and procedures along the corridor' (AIC–RIS, 2015: p.70). The Chair's Statement of the ASEAN–India Summit in 2010 and 2012 further acknowledged the importance of linking the TLH with ASEAN's connectivity plans, as well as its extension to the Lao People's Democratic Republic (Lao PDR), Cambodia, and Viet Nam.

Although significant progress has been made in the development of the TLH, particularly since 2011, it is still a project under construction, and therefore its contribution to the economic growth and development of the region has not yet reached its potential. At the ASEAN–India Informal Summit held on 15 November 2018 in Singapore, the Government of India proposed to commission the Economic Research Institute for ASEAN and East Asia (ERIA) to conduct a study on developing an economic corridor along the TLH and the feasibility of its extension to Cambodia, the Lao PDR, and Viet Nam, and the proposal was welcomed by the Leaders.

Based on the Thai proposal at the 16th ASEAN Highways Sub-Working Group Meeting in August 2018 and other existing initiatives, such as the Greater Mekong Sub-region (GMS), Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, Master Plan on ASEAN Connectivity (MPAC) 2025, and the ASEAN Highway Network, as well as the recognition that the connectivity to international ports is an important factor for the development of economic corridors, this study will consider the following as the potential eastward extension routes (Figure 7.1).

Figure 7.1. Trilateral Highway and the Potential Eastward Extension Routes



Source: Drawn by Umezaki and Kumagai (2020) based on ADB (2018b).

(1) Original alignment:

Moreh−[**India/Myanmar Border]**−Tamu−Kygone−Kalewa−Lar Poh−Yargyi−Monywa−Mandalay−Nay Pyi Taw−Bago (−Yangon) −Thaton−Eindu−Hpa-An−Kawkareik−Myawaddy **[Myanmar/Thailand Border]** Mae Sot

(2) Northern route for the eastward extension:

Meiktila−Loilem−Keng Tong−Tarlay−Keng Lap [**Myanmar/Lao PDR Border (Myanmar–Lao PDR Friendship Bridge)]** Xieng Kok−Muang Sing−Louang

Namtha−Nateuy−Oudomxay−Muang Khua−Pang Hok **[Lao PDR/Viet Nam Border]** Tay Trang−Dien Bien Phu−Son La−Hoa Binh− Ha Noi−Hai Phong

(3) Southern route for the eastward extension:

Mae Sot−Tak−Nakhon Sawan−Bangkok (− Laem Chabang)−Hinkong−Kabinburi −Aranyaprathet **[Thailand/Cambodia Border]** Poipet−Sisophon−Battambang−Pursat−Kampong Chhnang−Preach Kdam−Phnom Penh (− Sihanoukville) −Neak Loung−Bavet **[Cambodia/Viet Nam Border]** Moc Bai−Go Dau−Ho Chi Minh City−Ba Ria−Vung Tau

In 2018, the Asian Development Bank (ADB) released a series of comprehensive reports on the assessment and review of the configuration of the economic corridors under the Greater Mekong Subregion (GMS) Economic Cooperation Programme (ADB 2018a-h)[1]. As a result of the reconfiguration, a significant part of the TLH was designated as part of the North–South Economic Corridor (NSEC). The section between Tamu and Mandalay, via Kyigone, Kalewa, Lar Poh, Yargyi, and Monywa, was named as the sub-corridor No. 6 of the NSEC (NSEC-6). The section between Mandalay and Bago, via Meiktila and Nay Pyi Taw, was designated as sub-corridor No. 5 of the NSEC (NSEC-5). And the section between Yangon and Myawaddy, via Bago, Thaton, Hpa-An, Kawkaleik, was confirmed as a part of the East–West Economic Corridor (EWEC) with some minor reconfiguration.

The northern route of the eastward extension does not overlap with GMS economic corridors, except for short sections between Luang Namtha and Nateuy (NSEC-1), which is also a part of Asian Highway No.12 (AH-12) under UNESCAP, and Nateuy and Oudomxay (Muangsai) (NSEC-2),

[1] The recommendations on the configuration of GMS Economic Corridors in ADB (2018a:19) are closely related to the TLH and its eastward extension, namely (i) include an extension at the western end of the EWEC to *Yangon–Thilawa using the Myawaddy–Kawkareik–Eindu–Hpa-An–Thaton–Kyaikto–Payagi–Bago–Yangon–Thilawa route*, with a possible extension to Pathein; (ii) include the Kunming–Dali–Ruili–Muse–*Mandalay–Nay Pyi Taw–Yangon* route in the NSEC; (iii) add an extension to the Kunming–Dali–Ruili–Muse–Mandalay–Nay Pyi Taw–Yangon route *to link Mandalay to Tamu at the border with India, using the Mandalay–Kalewa–Tamu route via Monywa or Shwebo*; (iv) add the *Boten–Oudomxay*–Luang Prabang–Vang Vieng–Vientiane–Nong Khai–Udon Thani–Nakhon Ratchasima–Laem Chabang route to NSEC; and (v) include a Bangkok and Ha Noi link in NSEC using the Bangkok–Nakhon Ratchasima–Udon Thani–Sakon Nakhon–Nakhon Phanom–Thakhek–Na Phao–Chalo (via Route No.12)–Vung Ang–Vinh–Ha Noi route; (vi) include a link between Vientiane and Ha Noi using the Paksan–Nam Phao–Cau Treo–Vinh route with an extension to Vung Ang.' Italic highlights, added by the author, indicate the sections directly related to the TLH and its eastward extension.

which is also a part of the Asian Highway No. 12 (AH-12). Several sections overlap only with the Asian Highway. Meiktila–Tarlay in Shan State of Myanmar is a part of Asian Highway No. 2 (AH-2). The long section from Oudomxay in the Lao PDR to Ha Noi in Viet Nam via the Pang Hok/Tay Trang border overlaps with the Asian Highway No.13 (AH-13), whereas the remaining Hanoi–Haiphong section is also a part of Asian Highway No. 14 (AH-14). In 2019, ASEAN, with support from the World Bank and Australian Aid, identified the upgrading of the section between Tarlay and Keng Lap (Kyainglat) as one of the 19 initial pipeline projects (World Bank et al. 2019b)[2]. In summary, the remaining section on the northern extension route, which has not been covered by any international cooperation initiative, is between Xieng Kok and Luang Namtha via Muang Sing in the Lao PDR. In particular, the section between Xieng Kok and Muang Sing has long been left out of development, being the only section along the northern extension route that is still unpaved.

The southern route of the eastward extension overlaps with the EWEC from Mae Sot to Tak, and with the NSEC-1 from Tak to Bangkok, and with the Southern Economic Corridor (SEC-1) from Bangkok to Ho Chi Minh City in Viet Nam via Cambodia. Two branch routes from Bangkok to Laem Chabang and from Phnom to Sihanoukville are also parts of the SEC-3 and SEC-4, respectively.

Overlapping with international cooperation initiatives does not guarantee assistance from the coordinating institutions, yet these sections are in a favourable position because they are closely connected with the international aid community. As the Asian Development Bank (ADB) has its own funds for financing infrastructure projects, the sections that overlap with the GMS economic corridors are more likely to get access to external finance. The potential benefits of road infrastructure can be explored when the section is well connected to existing road networks and other modes of transportation. Therefore, it is important to design road infrastructure projects for the TLH and its eastward extension with close communication with these international cooperation initiatives. This also applies to the initial pipeline of transport infrastructure projects identified in the MPAC 2025 that are at an advanced stage of project preparation and are also being considered for co-financing from ASEAN's Dialogue Partners and international organisations.

[2] World Bank et al (2019a) also identifies the section between Takaw and Keng Tung (Kyaington) as one of the potential pipeline projects.

7.2. Key Findings

The original alignment of the TLH is basically a domestic road in Myanmar plus minimal infrastructure to cross the borders with India and Thailand, and, therefore, the development of the TLH had been slow until 2011. Since then, the development of the TLH has been accelerated mainly in terms of physical infrastructure, such as roads, bridges, and logistic facilities, such as dry ports and border-crossing facilities. In contrast, progress in making institutional arrangements for trade and transport facilitation has been slow. Myanmar's border trade has been mainly with China, followed by Thailand. India's share is increasing but still very small. That is, there remains ample room for expanding border trade along the TLH. Similarly, border trade along the northern route of the eastward extension is very small for both Myanmar and the Lao PDR, and the Lao PDR and Viet Nam, mainly because of the low economic complementarity with neighbouring countries.[3]

(1) Physical infrastructure

Most of the original alignment of the TLH has been recently upgraded or has been under upgrading, improvement, or repair work. Completed projects include the bypass road connecting Myawaddy and Kawkaleik (Thailand) and the second friendship bridge connecting Myawaddy and Mae Sot. The ongoing projects include the road upgrading between Kalewa and Yargyi (India), the road upgrading between Yargyi and Monywa (BOT), the new Bago bridge (Japan), and the construction of an arterial road connecting Bago and Kyaikto (ADB). Assuming the timely completion of the ongoing projects, the remaining bottlenecks are the replacement of 69 bridges along the Tamu–Kyigone–Kalewa road, which is expected to resume soon as the legal case at the Manipur High Court was concluded in favour of the Government of India in October 2019, and the upgrading of the Thaton–Eindu road, which has been stuck under a build–operate–transfer (BOT) arrangement with a Chinese company.

The northern extension route still has a lot of bottlenecks, some of which are beyond the scope of infrastructure development. Although the Myanmar–Lao PDR Friendship Bridge opened in 2015, its utilisation is still very limited, mainly because of the lack of a bilateral agreement for

[3] During the field trips in December 2019 and January 2020, we observed many trucks exporting agricultural products from Viet Nam to the Lao PDR and from Myanmar to the Lao PDR. However, the final destination of most of these exports was China instead of the Lao PDR. They exported to the Lao PDR first in order to avoid the export quotas imposed by China.

cross-border transport. The most significant bottlenecks in Myanmar are the restriction on foreigners in entering some parts of Shan State and the night-time closure of the Thanlyin bridge in Takaw for security reasons. The road connecting Tarlay and Keng Lap is narrow, and the surface has been damaged. In the Lao PDR, the road section between Xieng Kok and Muang Sing is still unpaved. Although most of the road infrastructure in Lao PDR has not been severely damaged, some sections may require minor repair works or expansion to accommodate large trucks. The Lao PDR stopped issuing on-arrival visas at the Pang Hok border check point, facing Tay Trang in Viet Nam, at the end of 2019. Although the mountainous section between Tay Trang and Na Thin in Viet Nam was heavily damaged, repairs and expansion work have been in progress.

In comparison, the southern extension route has been better developed as parts of the GMS economic corridors, including the already well-developed road networks in Thailand and the construction of Tsubasa Bridge over the Mekong River in Neak Loung, Cambodia. At least in terms of physical infrastructure, the southern route for the eastward extension of the TLH will not require a large amount of additional investment, although the critical issue of institutional arrangement still remains.

Given its limited government revenue, Myanmar has a large dependence on foreign assistance in order to meet the vast demand for infrastructure investment in roads and other infrastructure. The role of the private sector, through BOT arrangements, has been significant for construction and maintenance. In addition, local townships along trunk roads, including the TLH, have been playing an important role in maintenance, using the funds collected as the wheel tax.

(2) Institutional arrangements

At present, there is no transport facilitation agreement covering the three member countries of the TLH.

The Bangladesh, Bhutan, India, and Nepal Motor Vehicles Agreement (BBIN–MVA) was signed on 15 June 2015, and is being prepared for implementation amongst Bangladesh, India and Nepal.[4] India has proposed a transport facilitation agreement based on the BBIN–MVA for

[4] 'Joint Press Release on the Meeting of Bangladesh, Bhutan, India and Nepal on the Motor Vehicles Agreement (BBIN MVA)', *Press Releases*, Ministry of External Affairs, the Government of India, 8 February 2020. Bhutan temporarily withdrew from the agreement in 2017 because of the fear of an influx of vehicles from other countries impacting its own transporters and degradation of the environment ('Bhutan says exit from BBIN motor vehicles pact is temporary,' *The Hindu: Business Line*, 7 May 2017).

Myanmar and Thailand to adopt for the TLH, although it is not in the public domain yet. As of today, India has not received a response from either country.

The contracting parties of the Cross Border Transport Agreement (CBTA), including Myanmar and Thailand, completed the ratification process in 2015, more than 20 years since the initial discussion in September 1994. During this time, some parts of the CBTA became outdated and needed to be revised, and the GMS Transport Ministers agreed in 2016 to launch the Early Harvest implementation of the CBTA and to complete the revision process. The Initial Implementation of the CBTA (II-CBTA) between Thailand and Myanmar took effect with a Memorandum of Understanding signed in March 2019. Under the II-CBTA, Thai trucks are now allowed to enter the territory of Myanmar to Thilawa, and Myanmar trucks can go directly to Leam Chabang.

Despite the high aspiration of the GMS–CBTA, it has not been in full implementation, even after two decades of continuous efforts.[5] The reasons for the delay include (1) security concerns at border areas, including the risk of smuggling; (2) difficulties in harmonising related rules and regulations, such as right-hand/left-hand drive and insurance; (3) protectionist motives for domestic logistics services providers (LSPs); (4) unwillingness of LSPs to expand their business too deep into the neighbouring countries; and (5) low demand, particularly for long-haul transportation, which is assumed in the design of the GMS–CBTA in the form of transit transport.[6] On the other hand, during the process of deepening economic integration in ASEAN and the surrounding regions, manufacturing activities have been fragmented into several production blocks, and some of them have been relocated to neighbouring countries with better-fit location advantages for the production blocks (ERIA, 2010). As a result, the cross-border trade of raw materials, parts, and final products has increased, accompanied inseparably by the demand for cross-border transportation on a more frequent basis. While negotiating for the GMS–CBTA, GMS countries enabled cross-border transportation by using bilateral agreements with neighbouring countries. Although such a combined use of bilateral agreements may not be the first-best solution to meeting the increasing demand for cross-border transportation, it has indeed worked well enough as a second-best solution. From a pragmatic perspective, a feasible

[5] Transport facilitation agreements in ASEAN have also stalled due to the difficulty in reaching an agreement on transit transport. More than two decades have passed since the initial conceptualisation.
[6] Our small sample survey shows that the demand for cross-border transportation is not high amongst logistics services providers.

second-best solution is often better than an unfeasible first-best solution.

(3) Implications from GSM analyses

The expected impact of the TLH, including its eastward extensions, is not quantitatively large in terms of both increasing gross domestic product and narrowing development gaps for the region as a whole (Umezaki and Kumagai, 2020). This is mainly because of the lack of vibrant economic agglomeration along the route. Although Bangkok, Ho Chi Minh City, and Ha Noi are included in the eastward extension routes, they are located only on one side of the original alignment of the TLH. In order to transform a transport corridor into an economic corridor by stimulating two-way trade, it is important to have at least two economic agglomerations on both ends of the route.[7]

Myanmar is the largest beneficiary of the development of the TLH and its eastward extension, reflecting the fact that most of the original alignment of the TLH is in the territory of Myanmar. Thailand is the second beneficiary, and the impacts on India are positive but presently limited in scale. However, from an inclusive growth perspective, both real and potential impacts are welcomed. Despite different levels of impact along the TLH, a seamless transport corridor provides a real opportunity for setting processes and mechanisms that offer the most towards the reconciliation of the costs and benefits.

Although the additional impacts caused by the northern extension route and the southern extension route are more or less similar in terms of their total amounts, the distributional implications differ substantially. If we compare only in terms of the expected economic impacts, Myanmar would prefer the northern extension route, and others would prefer the southern extension route. The smaller than expected impact can be explained by the low demand for transportation, mainly because of the lack of trade complementarities between the NER of India and Myanmar (De et al. 2020). On the other side of the TLH, Myanmar and Thailand have proactively enhanced bilateral connectivity since Myanmar's transition to a civilian rule, starting from the construction of the Myawaddy–Kawkaleik bypass and followed by the opening of the Second Friendship Bridge, the completion of the four-lane highway between Tak and Mae Sot in 2019, and the commencement of the Initial Implementation of the CBTA. Therefore, the room

[7] A similar argument can be found in ERIA (2010), claiming that amongst the three economic corridors in the GMS, the Southern Economic Corridor would generate the largest economic impact on the region because of its alignment having Bangkok and Ho Chi Minh City on both ends of the route.

for additional gains from the completion of the TLH is already limited.

The economic impacts will be larger when the additional degree of improvement in road infrastructure is larger. The implication is twofold. First, the lower the quality of the original road is, the larger the region's potential to enjoy positive economic impacts. The relatively larger economic impact on Myanmar induced by the northern extension route is probably because it passes through Shan State, where economic development is still in an early stage, reflecting weak connectivity to neighbouring countries. Second, the larger the improvement in the road quality, the larger the expected economic impacts are. In both cases, the degree of improvement in road infrastructure depends on the amount of investment. The northern extension route will require larger investment in improving road infrastructure because it needs to start from a lower status quo. In contrast, the southern extension route has already been better developed as GMS economic corridors, and, therefore, the necessary improvement is much smaller than for the northern extension route. Similarly, constructing a highway-quality road requires larger investment than constructing a standard quality road.

7.3. Policy recommendations

7.3.1. General Direction

The economic impacts of the TLH per se would not be quantitatively large, at least in the short term, mainly because of the low economic complementarity in the region. This is the bottom line where we start considering the future path of the TLH, including its eastward extension. The smaller than expected economic impacts of the TLH and its eastward extension do not mean that the project is not worth implementing. Rather, it implies the importance of implementing policies beyond the scope of infrastructure development and institutional arrangements for cross-border transport facilitation, for example (1) *private sector development policy*, including industrial policy to promote specific industries based on endowments such as resource-based industry and special-purpose tourism and ; (2) *spatial development policy* to upgrade selected cities as business and logistic hubs with effective connectivity to the surrounding regions by various modes of transportation; and (3) *domestic security policy* to improve security conditions as an integral element of business environments.[8] These are necessary, particularly for the NER

[8] These are indeed very important issues in the NER of India and Myanmar in particular, where

of India and some parts of Myanmar, to embark on steady economic development, which has long been hindered by intertwined bottlenecks. Given the complexity of the problem, it may take a long time to solve and see tangible results. There is no magical solution. Steady and step-by-step implementation of a wide-ranging set of policies is key for inclusive, resilient, and sustainable economic development in the region. During the process, the TLH and the eastward extension can serve as a facilitating framework.

The distribution of the gains would differ significantly by country and region. Therefore, the development of the TLH and its eastward extension can be used to narrow development gaps in the region. Given the relatively fragile security conditions in some parts of Myanmar and India, it is important for policymakers to consider the distributional consequences of corridor development in addition to the usual concerns on the total return on investment. Otherwise, uneven economic impacts may cause unnecessary conflicts in the region or even within a country.

Another aspect of uneven expected impacts is related to the benefit principle in addition to the principle of ability to pay. As discussed above, the country-wise distribution of the expected economic impacts would differ significantly irrespective of the choice of the eastward extension routes. In this context, it is reasonable for Thailand to assist Myanmar to upgrade the road infrastructure along the Thai side of the TLH because it is expected to generate economic benefits for Thailand as well as Myanmar. A similar discussion holds for India in its assistance to develop the Kalewa–Yargyi section of the TLH.

Repeated natural disasters and the ongoing COVID-19 pandemic have reminded the world of the vulnerability, or the serious risk on the reverse side, of the global value chain. One way to strengthen the resiliency of value chains is to have alternative routes. In this context, the potential of the TLH could be fully explored when it is well connected to other road networks, such as the GMS economic corridors and the networks of other modes of transportation, such as railways, waterways, maritime, and air.

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insurgencies still prevail in some border areas. For example, the Nationwide Ceasefire Agreement (NCA) in Myanmar prescribes 17 provisions that the Tatmadaw (Myanmar Armed Forces) and the Ethnic Armed Organization shall abide by for the protection of civilians. The first provision of the list is to '(p)rovide necessary support in coordination with each other to improve livelihoods, health, education, and regional development for the people.' The English version of the NCA is available at the website of NCA-S EAO, which stands for NCA Signatories Ethnic Armed Organization (https://www.ncaseao.org/). Although there is a long and complex history of conflicts between Tatmadaw and each ethnic armed organisation, the development of the TLH and its eastward extension can be regarded as a way to realise the provision.

7.3.2. Specific recommendations

(1) Complete transport infrastructure along the original alignment of the TLH.

- Complete ongoing construction or upgrading projects according to the schedule.
  - **[Kalewa–Yargyi]** To be upgraded by May 2021 with the support of India.
  - **[Eindu–Kawkareik]** A 66.4 km section between Eindu and Kawkareik has been being upgraded under the assistance of ADB and co-financed by the ASEAN Infrastructure Fund (AIF). As of 15 September 2019, the overall progress of the project was 57.47%. The scheduled closing date of the project is 31 March 2020.
  - **[Gyaing Kawkareik Bridge]** A ground-breaking ceremony was held on 31 October 2019 for Gyaing Kawkareik Bridge (580m) in Kawkareik, to be completed by July 2021, replacing the existing two-lane structure with a four-lane bridge, with the assistance of the Japan International Cooperation Agency (JICA).[9]
  - **[New Bago Bridge]** A ground-breaking ceremony was held on 13 February 2019 for the New Bago Bridge, which is to be opened in 2021 with the objective to enhance connectivity between Yangon and the Thilawa Special Economic Zone (SEZ) by complementing the existing Thanlyn Bridge, which is too old to accommodate heavy trucks.
- Resume stalled projects immediately.
  - **[Thaton–Eindu] [MT]** Resume bilateral talks between Thailand and Myanmar to advance the upgrading project for the Thaton–Eindu section, which has been stuck under the existing BOT arrangement (Banomyong, 2020).
  - **[Bridge rehabilitation] [I]** Resume the bridge rehabilitation project on the Tamu–Kygone–Kalewa road based on the verdict in October 2019 at the Manipur High Court (De et al. 2020).
- Steadily move forward relevant infrastructure projects that are in the preparatory stages.
  - [Bago–Kyaikto] A new arterial highway between Bago and Kyaikto (76.6 km) is to be developed as a part of the 2nd GMS Highway Modernization Project of ADB (No.50381-006), which will be completed by the end of 2024. The new arterial

[9] 'Japan Consortium Building Bridge on East–West Corridor in Myanmar,' *NNA Business News*, 6 November 2019.

highway is designed to be 32 km shorter than the current alignment, and the travel time will be halved. A tender for a consulting service for detailed technical preparation was closed on 20 December 2019. This process is expected to be completed in the 1st quarter of 2021, presumably followed by physical construction work.

- **[New Sittaung Bridge]** As a part of the new arterial highway between Bago and Kyaikto, a new bridge (2.3 km) over the Sittaung River will be constructed by the Ministry of Construction with assistance from JICA. The expected year of completion is 2026.[10]
- **[Yangon–Mandalay Expressway] [M]** Move forward with the upgrading of the Yangon–Mandalay Expressway, which is listed as one of the 19 initial pipeline projects of the ASEAN infrastructure project and as an integral part of the MPAC 2025. According to World Bank et al. (2019b), this project is to upgrade the existing 589 km two-lane expressway to a design speed of 100 km per hour. Several feasibility studies have been conducted by ADB, China Road and Bridge Cooperation, and the Korea International Cooperation Agency, amongst others.

(2) Set up a high-powered committee to facilitate cross-border transportation and trade.

- The proposed 'high-powered committee' can be organised with reference to the Joint Committee under the GMS–CBTA, which is formed by the representatives of the National Transport Facilitation Committees (NTFCs) of member countries.[11] Thailand and Myanmar have already established their respective NTFCs, and they have the capacity to represent each country in the 'high-powered committee'. In order to take advantage of such existing framework, India is recommended to organise a national committee corresponding to the NTFCs to represent the country during the process of negotiation and the subsequent implementation.

[10] 'New Thanlyin–Bago–Kyaikhto Highways Proposed,' *Myanmar Times*, 26 February 2020. According to the article, 'work is expected to start soon on a new road link connecting Thanlyin in the Yangon Region to Bago in the Bago Region. The project, expected to cost US$160 million (MK228.5 billion), will be built with help from JICA.'

[11] 'Agreement between and amongst the Governments of the Lao People's Democratic Republic, the Kingdom of Thailand, and the Socialist Republic of Viet Nam for the Facilitation of Cross-Border Transport of Goods and People' stipulates the establishment of NTFCs and the formation (Article 28) of the Joint Committee (Article 29). See ADB (2011) for the original text of the agreement.

- Compare the pros and cons of multiple options for transport facilitation arrangements, such as the MVA, CBTA, and the ad hoc use of bilateral agreements. It is recommended to start from the use of bilateral agreements, in particular, by making a bilateral cross-border transport agreement between India and Myanmar, as the II-CBTA between Myanmar and Thailand is already in operation.
- **[M]** Issue special permission for the registered trucks under the TLH cross-border transport agreement to use the Yangon–Mandalay Expressway, in case this section is covered by the agreement. As the registered trucks are mainly for long-haul transportation, the permission can contribute not only to reducing time but also to improving road safety. In addition, due to the registration procedures, the number of trucks concerned will be limited, and the axle load controls can be easily enforced.
- Discuss desirable or acceptable specifications of cross-border facilities, such as operating hours (24/7, or other), single-window and/or single-stop services, customs cooperation, banking facilities, and so on.
- Conduct a 'reality check' study to explore the current situation and understand whether there is real demand for transit goods along the TLH (Banomyong, 2020).
- Share best practices of cross-border trade and transportation.

(3) Improve infrastructure and the business environment of the border area.

- **[Friendship Bridge at Moreh/Tamu] [IM]** The existing Friendship Bridge, built by India in 2001, has to be redeveloped to accommodate cargo vehicles of a larger size (De et al., 2020).
- **[IM]** Narrowing the infrastructure gap between Moreh and Tamu. Specifically, cold storage, food testing laboratory, container handling, and hotels are available in Moreh, but not available in Tamu. On the contrary, foreign exchange facilities and medical facilities are available in Tamu but not available in Moreh (De et al., 2020). For example, while the food testing laboratory in Moreh needs to be strengthened, a similar facility needs to be developed in Tamu.
- Other border infrastructure and facilities to be considered include a reliable electricity supply, good quality internet, a full-body cargo scanner for containers, cargo vehicle yards, border fencing, a warehouse for refrigerated goods, a warehouse for seized items, plant and quarantine facilities, and a control office for drugs and narcotics (De et al.,

2020).

- Gradually formalise border administration by shifting informal trade to formal trade, by enforcing administrative controls at an appropriate level for the cross-border movement of people and vehicles, and so on. The objective of the formalisation is not to hinder but to facilitate the cross-border movement of goods, people, and vehicles by raising the transparency and predictability of border administration as well as by enhancing the effectiveness of border controls at the time of emergency, in particular.
- **[I]** Facilitate the movement of people between Moreh and Imphal. Foreigners entering at Moreh, mostly Myanmar nationals, face multiple security checks between Moreh and Imphal that cause time delays and costs (De et al., 2020).

(4) Develop logistics infrastructure along the TLH.

- **[M]** Developing dry ports in key locations, such as Myawaddy and Tamu, while considering the division of labour with existing dry ports in Yangon and Mandalay, with reference to the design of cross-border transport facilitation arrangements for the TLH. The suitable location for dry ports depends on the content of the cross-border transport agreement.
- **[M]** Develop Mandalay as the logistics hub connecting (1) Yangon and Thailand through the Myawaddy/Mae Sot border, (2) the NER of India through the Tamu/Moreh border, (3) China through the Muse/Ruili border, and (4) the Lao PDR, China, and Viet Nam through Keng Lap/Xieng Kok border.
- **[I]** Develop Guwahati in Assam State as the logistics hub connecting mainland India and the entire NER together with a hub-and-spoke network to the capital city of each state through existing road and railway networks. The spoke from Guwahati to Imphal should be effectively and efficiently connected to the TLH through the Imphal–Moreh bypass road, which is to be completed in 2022 with assistance from ADB.

(5) Establish a mechanism to ensure the financial sustainability of road maintenance.

- **[M]** Review the fiscal system to ensure sustainable funding sources for the construction and maintenance of road infrastructure.
- **[M]** Review the wheel tax system, under which townships along trunk roads collect user fees from drivers, to remove frictions on road transportation.
- **[M]** Review the efficiency and effectiveness of the BOT system.

(6) Connect the TLH effectively with other transport networks.

- Expand the aviation network amongst Myanmar, Thailand, and the NER of India to promote regional tourism and to complement road-based connectivity.
- Take account of access roads to other modes of transportation, such as inland waterways and maritime transportation (ports), railway (stations), air transportation (airports), and other logistic facilities, such as dry ports and inland container depots during the process of developing road infrastructure along the TLH.

(7) Enhance collaboration with the private sector.

- Organise a business-matching forum by inviting traders, logistic services providers (LSPs), and local government officials back-to-back with the official meeting for the TLH. In particular, it is important to facilitate the networking of LSPs to enable seamless logistics services along the TLH.
- **[I]** Promote domestic investment to the NER with an explicit focus on enhancing the competitiveness of resource-based industries in the NER.
- **[I]** Promote services industries, such as education, tourism, and medical treatment, etc.
- Supporting small and medium-sized enterprises in the border areas to meet the new business opportunities to be opened by the TLH (De et al., 2020).

(8) Conceptualise and develop eastward extensions

- **[IMLV]** Design and promote the northern extension route under the concept of the Second East–West Economic Corridor, which skewers sub-corridors of the GMS–NSEC in an east–west direction, with the multiple aims of (1) enhancing the resiliency of the road network by offering alternative routes and, thereby, enabling a flexible choice of routes; (2) improving the security conditions of the region along the route by offering new opportunities for economic development; as well as (3) invigorating local economies by facilitating border trade. Closer collaboration with ADB is highly recommended.
- **[ML]** Commence negotiation on the bilateral cross-border transport agreement, based on the draft proposed by the government of the Lao PDR. Once the agreement is done, both governments are recommended to operationalise the agreement in a timely manner.

- **[M]** Upgrade the Tarlay–Keng Lap section (54 km) to Class III or better in the Asian Highway standard. The section is listed as one of the 19 initial pipeline infrastructure projects for MPAC2025. The funding source has yet to be decided.
- **[L]** Upgrade and pave the Xieng Kok–Muang Sing section (69 km) to Class III or better in the Asian Highway standard. A recent listing up of the Tarlay–Keng Lap section as one of the 19 initial pipeline projects for the MPAC2025 would be effective in attracting the attention of potential donors, which may include India, the World Bank, ADB, and the Japan ASEAN Integration Fund (JAIF), amongst others.
- **[M]** Promote the Nationwide Ceasefire Agreement (NCA) as widely as possible to normalise the security condition of Shan State. In parallel with the progress of national reconciliation, when the opportunity comes, lift the restriction on the entry of foreigners in Shan State and the night-time closure of the Thanlyin bridge in Takaw.
- **[M]** Complete repair and upgrading work along the 61.2 km mountainous section between Yin Mar Bin and Kalaw in Shan State.
- **[V]** Upgrade and widen the road section from Dien Bien Phu to Tay Trang, or the 13 km mountainous section between Na Thin and Tay Trang, in particular, to ensure a good connection with the Lao PDR via the Tay Trang/Pang Hok border gate, with financial assistance from cement and stone mining companies operating along the road, which are regarded as responsible for the existing damage of the surface.
- **[V]** Upgrade roads and signalling systems at unfavourable points, such as the mountain passes and slopes of Cun, Thung Khe, Chieng Dong, Pha Din, Tang Quai, and Na Loi (Nguyen et al., 2020).
- **[LV]** Improve the provision of public services at the Tay Trang/Pang Hok border gate, including the shortening of the lunchtime, shortening time for procedures, and improving the transparency of procedures and fees (Nguyen et al., 2020).
- In contrast to the northern extension route, the southern extension route has already been better developed as a part of the national road network in Thailand as well as a part of the GMS economic corridors and, therefore, the necessary improvement is much smaller than the northern extension route. As the road condition is at least ‘fair’, there is no urgent need to develop physical infrastructure along this route.

(9) Study the possibility of developing alternative routes.

- As the next step after the completion of the original alignment of the TLH, it is recommended to consider the possibility to develop alternative routes to enhance the resiliency of the TLH from a longer-term perspective. This process could be done in parallel with the development of the northern route of the eastward extension, which is expected to take a long time.

  - **[Zawkohthar/Rihkhawdar] [IM]** In order to enhance the resiliency of the TLH, an alternative route needs to be listed in the pipeline, in addition to the existing route through the Moreh/Tamu border, which has effectively been the only route connecting India and Myanmar by road. In order to take advantage of the border between Zawkohthar in Mizoram State of India and Rihkhawdar in Chin State of Myanmar as the alternative gateway, two road segments from Rihkhawdar need to be upgraded. One is to Kalemyo through Tedim and the other is to Gangaw via Thantlang and Hakha. Kalemyo and Gangaw are major cities along the Monywa–Kyigone segment of the Asian Highway No. 1 (AH-1). These alternative routes will enhance the resiliency of the connectivity between India and Myanmar and facilitate the spreading of the economic impacts of the TLH.
  - **[Payathonzu/Three Pagoda Pass] [MT]** In order to enhance the resiliency of the TLH, an alternative route needs to be listed in the pipeline, in addition to the existing route through the Myawaddy/Mae Sot border, which has effectively been one of the two major routes connecting Myanmar and Thailand by road. Another major route through the Tachileik/Mae Sai border is difficult to substitute for the route through the Myawaddy/Mae Sot border because they are geographically far away. The signing of the NCA by the New Mon State Party (NMSP) on 13 February 2018 was a major step to improving security conditions in Mon State.[12] Being the

[12] Unfortunately, there was a clash between the Tatmadaw (military) and the NMSP near the Thai–Myanmar border for the first time since the NMSP's signing of the NCA in February 2018 ('Tatmadaw, Mon ethnic armed group clash on Thai–Myanmar border,' *Myanmar Times*, 28 November 2019). In addition, several clashes between the NMSP and the Karen National Union (KNU), which is one of the original signers of the NCA since 15 October 2015, have been reported even after the agreement between leaders to halt fighting ('NMSP, KNU Clash After Reaching Agreement to Halt Fighting,' *Myanmar Peace Monitor*, 28 October 2019). As the security condition is still unstable, the development of the route through the Payathonzu/Three Pagoda Pass border will take a long time.

third-largest city after Yangon and Mandalay, Mawlamyine, the capital of Mon State, has the potential to enlarge the economic impacts when it takes part in the TLH.[13] In addition, the route from Mawlamyine to the Payathonzu/Three Pagoda Pass border along the old Thai–Burma Railway could be a candidate for the alternative route to complement the existing route through the Myawaddy/Mae Sot border.

7.4. Ways Forward

The development of the TLH accelerated dramatically after Myanmar's transition to civilian rule in 2011. Thailand and India immediately offered official assistance to enhance respective bilateral connectivity.

The bypass road connecting Thinggan Nyenaung (near Myawaddy) and Kawkaleik, which was constructed with Thai aid and inaugurated on 30 August 2015, has shortened the travel time significantly. The Second Friendship Bridge, connecting Myawaddy and Mae Sot, was officially opened on 30 October 2019. On the Thai side, a four-lane highway connecting Mae Sot and Tak was completed in 2019. Regarding the institutional arrangement for cross-border transportation, the memorandum of understanding for the II-CBTA was signed in March 2019, and the actual utilisation of the II-CBTA has just started in March 2020 (MSR, 2020). These changes have already been increasing the cross-border movement of goods, vehicles, and people between Myanmar and Thailand. For example, Thailand's exports of motorcycles to Myanmar at the Mae Sot/Myawaddy border increased dramatically from B1,265 million in FY2014 to B3,136 million in FY2017 (Banomyong, 2020). It is natural to imagine that these imported motorcycles have been changing the lives of the people of Myanmar. Although the amount is much smaller than for exports, Thailand's imports from Myanmar through the Myawaddy/Mae Sot border, consisting mostly of agricultural products, have been increasing as well.

[13] Mawlamyine used to be the west end of the original alignment of the GMS–EWEC as a historic port town. After several revisions, the current west end of the GMS–EWEC is Yangon, without passing through Mawlamyine.

On the other side, India has been assisting Myanmar in the bridge replacement project on the Tamu−Kyigone−Kalewa road and in upgrading the Kalewa−Yargyi road, although both are not completed yet. In India, a bypass road connecting Imphal and Moreh is under construction and is to be completed by 2022 (De et al., 2020). The Integrated Check Post (ICP) started its operation in August 2018. Accordingly, the border trade between India and Myanmar through the Moreh/Tamu border has been increasing significantly. In addition, it was recently reported that an international bus service connecting Mandalay and Imphal was about to start operation on 7 April 2020.[14] Although the size of border trade between India and Myanmar is much smaller than that between Thailand and Myanmar, it is also increasing significantly (De et al., 2020).

All these developments indicate that the TLH is entering a new phase, which is characterised by utilisation rather than conceptualisation and development. In parallel, Myanmar's economy has been undergoing significant changes. For example, Thilawa SEZ, inaugurated in September 2015, has received 111 investment projects as of 1 March 2020, of which 44 projects are export oriented and 66 projects are domestic market oriented.[15] Japan is the largest source of investment, amounting to 55 investment projects, followed by Thailand (16 projects). With the operationalisation of the II-CBTA between Thailand and Myanmar, which allows Thai trucks to enter the territory of Myanmar directly to Thilawa SEZ, it has become easier for the factories operating in Thilawa SEZ to import raw materials and intermediate products from Thailand for subsequent processing. The final products can be transported by Myanmar trucks directly to Laem Chabang Port to export to the world. Although the utilisation of the II-CBTA has started recently, this kind of operation is expected to increase the share of horizontal trade (intra-industry trade) vis-à-vis vertical trade (inter-industry trade), leading to structural changes in border trade between Myanmar and Thailand. This in turn will contribute to upgrading Myanmar's industrial structure. On the other hand, investors from Thailand can take advantage of the difference in factor endowment, or location advantage, by utilising Thilawa SEZ as a new destination for the so-called 'Thai plus one' strategy.[16]

[14] 'Imphal–Mandalay Bus Service to Begin from April 7,' *The Wire*, 20 February 2020.
[15] Myanmar Japan Thilawa Development, Ltd.
[16] A typical example of the 'Thai plus one' strategy is relocating a labour-intensive production process from the mother factory in Thailand to Thilawa SEZ in order to reduce the total cost of production. See ERIA (2010) for the mechanism of fragmentation. This kind of investment has already been observed in Cambodia and the Lao PDR.

In contrast, it is difficult to expect a similar type of investment from India to Myanmar, at least in the short run, mainly because India's manufacturing sector is still less developed compared with Thailand, and the distance to the main factories are far away from the India–Myanmar border. The manufacturing sector in the NER of India is mainly resource-based and, therefore, not suitable for the fragmentation of production. However, the reduced time and cost of transportation to Myanmar and hence to Thailand will open wide opportunities for exporters in the NER, and vice versa. Therefore, the NER has the vast potential to become a logistics hub, connecting mainland India and ASEAN through Myanmar and Thailand. In this context, Mandalay and Thilawa (or Yangon) in Myanmar have a similar potential to become logistics hubs connecting Thailand, India, and China as well. The resulting increase in transport demand along the TLH is expected to increase derived demands in other services sectors, such as banking and finance, hotels and restaurants, and other business services. Furthermore, the improved business environment supported by a vigorous services sector could in turn attract investment in the manufacturing sector. The eastward extension, once completed, would magnify such chain reactions by offering larger markets and sources of supply. After the winding down of the COVID-19 pandemic, global supply chain networks will be reviewed and restructured substantially in order to enhance resiliency by relocating production facilities and/or diversifying markets and sources of supply (Ni, 2020). Preparing alternative routes, in addition to the regular route, for trade will also be an important issue for manufacturers and traders.

Of course, there still remains a lot to do to complete the TLH as discussed in this report. Steady and step-by-step implementation of the recommended policy measures will contribute to the inclusive, resilient, and sustainable economic development of the region.

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Terms of Reference

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No. JAK/ASEAN/106/18/2018 Dated 04 March 2019

Dear Kobayashi San,

I write with reference to our ongoing discussions on the TORs for the proposed ERIA Study to develop and Economic Corridor along the India-Myanmar-Thailand Trilateral Highway, and the feasibility of its extension to Cambodia, Lao PDR and Vietnam.

2. In this context I wish to convey the approval of the competent Indian authorities to the enclosed Terms of Reference for conducting the above mentioned study.

3. I look forward to collaborating with you closely during the course of this study, and also in keeping with paragraph IV of the TORs.

4. I thank you and ERIA once again for undertaking this study on our behalf.

Sincerely

(Rudrendra Tandon)

Mr. Izuru Kobayashi
COO, Director General of Administration
And Personnel Department
Economic Research Institute for ASEAN
And East Asia (ERIA), Jakarta, Indonesia

Copy to:
(i) Shri Anurag Bhushan, JS (ASEAN-ML), MEA, JNB, New Delhi.
(ii) Prof Sachin Chaturvedi, RIS, New Delhi.

Final

Study on the Trilateral Highway and Possible Extension to Cambodia, Lao PDR and Viet Nam: Current Status, Challenges, Opportunities

Concept Note and Terms of Reference

I. Background

At the ASEAN-India Informal Summit on 15 November 2018, the Leaders welcomed India's proposal for a study by the Economic Research Institute for ASEAN and East Asia (ERIA) on developing an economic corridor along the Trilateral Highway (TLH) and the feasibility of its extension to Cambodia, Lao PDR and Viet Nam.

Greater connectivity between India and ASEAN is both an economic and a strategic objective for the ASEAN-India partnership. The statements of Indian Prime Minister in the ASEAN-India Summit Meetings of 2011 and 2012 laid out the need for completion and extending the TLH to Cambodia, Lao PDR and Viet Nam. The Chair's Statement of ASEAN-India Summit in 2010 and 2012 acknowledged the importance of linking the TLH with ASEAN's connectivity plans, and its extension to Lao PDR, Cambodia and Viet Nam.

TLH was first conceived at the Trilateral Ministerial Meeting on Transport Linkages in Yangon in April 2002, where India, Myanmar and Thailand agreed to make all efforts to establish trilateral connectivity by 2016. Since then, progress has been made in the development of the TLH including the opening of new Myawaddy-Kawkareik road in 2015 and Integrated Check Post (ICP) at Moreh in January 2019. However, TLH is a project under-construction and therefore, its contribution to the economic growth and development of the region has not yet reached its potential.

The extension of TLH to Cambodia, Lao PDR and Viet Nam could further facilitate movement of goods and people between India and ASEAN, thereby strengthening the economic linkages between them. It will also be of particular importance for the economic growth of the Northeast Region (NER) of India, as this region will serve as the gateway on the Indian side, to the rest of the TLH and its eastward extension.

II. Scope of the Study

1. The study will focus on the feasibility of establishing an economic corridor along the TLH through a seamless, efficient and end to end transportation corridor along the existing TLH and the proposed extension towards Cambodia, Lao PDR and Viet Nam.

2. The study will examine the physical infrastructure of TLH such as road conditions, bridges and tunnels, and cross border facilities and institutional arrangements, and identify the factors that may hinder the seamless movement of goods and people across the length of the TLH and its potential eastward extension. The study will also cover the usage of the current TLH and suggest measures, both physical and institutional, to smoothen transportation and increase the movement of goods and people along the TLH.

3. The study will also examine the extension of the transportation corridor to Cambodia, Lao PDR and Viet Nam. For this purpose, the study will take into account the existing initiatives such as the Greater Mekong Sub-region (GMS), Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (*ACMECS*), Master Plan on ASEAN Connectivity (MPAC) 2025 and the ASEAN Highway Network (AHN), and the existing transportation infrastructure and border arrangements along Cambodia, Lao PDR and Viet Nam. The

study will propose synergies with existing transportation connectivity initiatives while avoiding duplication.

4. The RIS (India) will provide inputs on potential economic and social linkages on Northeast Region of India (NER) due to the development of a transportation corridor along TLH and its potential extension to Cambodia, Lao PDR and Viet Nam.

5. On the basis of above findings, the study will suggest practical policy options for undertaking necessary actions for establishing a functional transportation corridor along TLH and its extension to Cambodia, Lao PDR and Viet Nam.

6. The outcomes of the study will be reported to the ASEAN-India Senior Officials Meeting, the ASEAN-India Ministerial Meeting and the ASEAN-India Summit.

III. Study Team (Tentative)

- Prof. Fukunari Kimura (Chief Economist, ERIA), Supervisor
- Mr. So Umezaki (ERIA), Project Coordinator
- Prof. Toshihiro Kudo (GRIPS, Japan)
- Mr. Satoru Kumagai (IDE-JETRO, Japan)
- Dr. Masami Ishida (IDE-JETRO, Japan)
- Dr. Ruth Banomyong (Thammasat University, Thailand)
- RIS, India *[will provide experts from its ASEAN India Centre and NER departments]*

IV. The Study Team will regularly brief members of the Advisory Panel (either individually or jointly) on the progress of the study including at the planning stages of each step in the study. The Advisory Panel will comprise (i) Ambassador-Indian Mission to ASEAN; (ii) Chief Operating Officer & DG Policy Dept from ERIA.

V. Annotated ToR

(a) Introduction

- *Brief history of IMT and the value of TLH connectivity*
- *Backgrounds, objectives, and the scope of study, and the organization of report.*

(b) Current status of TLH and its eastward extension

- *Selective literature review.*
- *Cross-border trade flows along the TLH and its eastward extension.*
- *Traffic, both cargoes and passengers, and the provision of logistic services along the TLH and its eastward extension.*

(c) Physical infrastructure

- *Take stock of the current status and future plan of physical infrastructure development along TLH and its eastward extension such as roads, bridges, tunnels, and border facilities, with reference to the other relevant initiatives.*

[The study team will examine the physical infrastructure along: (1) the official alignment of TLH from Moreh to Mae Sot, (2) the eastward extension from Mae Sot using the best

possible alternative alignments, and (3) the road connectivity between Moreh at the beginning of the TLH, and the rest of the domestic road network in India (Based on RIS Study)]

- *Examine the sustainability of infrastructure from the viewpoints of demand, quality, and financing including those for maintenance.*

(d) Institutional arrangements

- *Take stock of the current status and future plan of institutional arrangements to facilitate seamless and effective movements of goods and people along TLH and its eastward extension, such as the Motor Vehicles Agreement (MVA), trade liberalization and facilitation, and visa regulation, with reference to the relevant existing initiatives.*

- *The scope of institutional arrangements is those designed and implemented along the road infrastructure covered in this study.*

- *Examine implementation aspects and possibility for harmonization with relevant existing initiatives in the region.*

(e) Economic impacts on India's NER (Based on RIS Study)

- *Need of infrastructure that may be needed to cope up the demand of trade and value chains that are established with India's NE region*
- *Potential hurdles and possible mitigation measures*

(f) For the better use of TLH: Key improvements and possible economic impacts to the region

- *Quantitatively investigate the impacts of enhanced connectivity along the TLH and its eastward extension using the Geographical Simulation Model based on several scenarios identified based on the above findings.*

- *Non-quantitative implications, such as the perspectives of the private sector, will be discussed as appropriate.*

Policy recommendations and Way Forward

VI. Schedule

March 4, 2019	:	Commencement
April-May 2019	:	Workshop/Field trip
July 2019	:	Submission of the Draft Mid-term Report
September 2019	:	Submission of Mid-term Report *(focusing on stocktaking)*
February 2020	:	Submission of Draft Final Report
April-May 2020	:	Submission of Final Report *(with deeper analyses and recommendations)*

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The Trilateral Highway (TLH) exemplifies the letter and spirit of India-ASEAN connectivity. It connects India, Myanmar and Thailand, and is linked with ASEAN's connectivity plans. Still a project under construction, its potential contribution to the economic growth and development of the region is indubitable. This study examines the maximizing of these objectives through a proposed extension of TLH to Lao PDR, Cambodia, and Viet Nam.

Based on the mandate from the ASEAN-India Summit Meeting of 2018 and commissioned by the Government of India, the Economic Research Institute for ASEAN and East Asia (ERIA) has studied the feasibility of establishing a seamless, efficient and end to end transportation corridor along the existing Trilateral Highway and its extension towards Cambodia, Lao PDR and Viet Nam. This study offers physical, institutional and economic pathways, along with policy recommendations for the development of TLH and its eastwards extension. The need for seamless physical connectivity has never been felt before like now. The study on the Trilateral Highway and its eastward extension fulfils this current need, and also lays down pathways for medium and longer-term integrated connectivity solutions between India and ASEAN.

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