Chapter 5

Improvements and Challenges Associated with the Facilitation of Road Transport in Myanmar

Akhar Soe

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Chapter 5

Improvements and Challenges Associated with the Facilitation of Road Transport in Myanmar

Ahkar Soe

Myanmar is located between China and India and acts as a land route between South Asia and Southeast Asia. If Myanmar is able to take advantage of its location, it could become a major regional hub. The transportation sector is key in providing the necessary connectivity within Myanmar but the condition of its roads, the majority of which are Class III and below, does not yet meet international standards. For this study, the road conditions and road signs of the Association of Southeast Asian Nations Highways 1, 2, and 3 in Myanmar are examined. Road traffic signs in Myanmar generally follow international conventions and are similar to those in Thailand and Germany. Furthermore, transport laws have been established since the early 1900s. However, only recently have the laws been updated with the Auto Vehicle Law and Road Transport Law. Myanmar has also successfully ratified the remaining protocols and annexes of the Greater Mekong Subregion Cross-Border Transport Agreement. To take advantage of Myanmar's location and effectively establish itself as the next major regional hub, extensive planning, sufficient funding, and active participation by all stakeholders are required.

Introduction

Located in Southeast Asia, Myanmar is the second largest country in the region, with a land area covering over 676,000 sq. km. The country shares its borders with Bangladesh, China, India, Lao PDR, and Thailand, and is therefore strategically located at the crossroads of China, South Asia, and Southeast Asia. It has a good economic relationship with its neighbours, including India, China, and Thailand, and engages in a thriving border trade with these countries. Given that it has opened up to the global economy starting 2011 – along with other factors such as its size, population, resources, market, and relatively undeveloped economy – the opportunities for Myanmar are aplenty.

With its strategic location, Myanmar can act as a land bridge for China, South Asia, and Southeast Asia. It can also act as a regional hub to neighbouring countries across the region. Myanmar is part of the Association of Southeast Asian Nations (ASEAN), which established the ASEAN Economic Community in 2015.

To achieve regional connectivity with strong economic and industrial corridors, Myanmar will first need to develop a solid transport corridor within the region. In fact, the country has been participating in highway networks in the region: namely, the ASEAN Highway, the Greater Mekong Subregion (GMS) Economic Corridor, the GMS Highway, and the Thai–Myanmar–India Tripartite Highways. Myanmar, thus, plays a crucial role in integrating the emerging economies of China and India with the rest of Asia. It can bring great benefits to ASEAN countries by improving the physical infrastructure – particularly road infrastructure – that links the Myanmar–China border (Muse), the Myanmar–Thailand border (Myawaddy), and the Myanmar–India border (Tamu).

Myanmar also complies with regional transportation and trade agreements to enhance international trade and investment. As a full ASEAN member, Myanmar is not only involved in ASEAN-level agreements on trade in goods (i.e. ASEAN Trade in Goods), services (i.e. ASEAN Framework Agreement on Services), investment (i.e. ASEAN Investment Area), and other ASEAN Economic Community-related integration and cooperation areas. It is also involved in all ASEAN + 1 agreements (five are currently in force: these are with Australia–New Zealand, China, India, Japan, and the Republic of Korea).

Since 1988, Myanmar has been taking steps to improve its physical and social infrastructure in compliance with its market-oriented economic policy. One of its economic objectives is to ensure ease of transportation within the country. Myanmar, thus, has taken measures to increase investments in infrastructure, which include encouraging the private sector's participation, joint ventures between public and private agencies, and build–operate–transfer (B-O-T) systems.

Domestically, many different modes of transport exist in Myanmar, including roads, railways, inland waterways, ports, and civil aviation. Road transport is the nation's dominant mode of transportation (ADB, 2015a), helping connect rural areas and support regional and international trade.

With the participation of the private sector, the development of road infrastructure has gained significant momentum and has been further accelerated with new and existing road construction projects across the country. However, since Myanmar's national transport policy has focused on the construction of major highways and new railways, little funding is left for the operation and maintenance of existing networks, particularly for low-level road networks.

Therefore, there remain significant gaps in Myanmar's infrastructure development. According to the Logistics Performance Index published by the World Bank, Myanmar was ranked 145 out of 160 nations in terms of logistics in 2014 – the lowest in the ASEAN region. According to available data published by the Department of Public Works, the total road length in Myanmar reached over 148,000 km in 2015 (Ministry of Construction, 2015), with paved roads only accounting for over 21% of its road network (World Bank, 2015). Although the total length of the road has increased dramatically in recent years, the quality remains relatively poor. This evident gap in the road networks of Myanmar compared to that of its neighbouring countries presents opportunities for private sector investment across several sectors.

1. Sections of the ASEAN Highway Planned for Upgrade in Myanmar

The ASEAN Highway (AH) Network is a regional transport initiative aimed at enhancing the efficiency and development of the road infrastructure in Asia, which then supports the development of Euro–Asia transport linkages; and improving connectivity for landlocked countries. Myanmar participated in the development of the ASEAN Highway and signed an agreement in April 2004 (Myint, 2013). It also ratified the agreement, which focuses on conformity with the classifications and design standards stipulated in the agreement's annex.

Amongst the ASEAN Highways passing through Myanmar, AH1, AH2, and AH3 need to be upgraded, while AH112 and AH123 are still considered as missing road links (Table 5.1; Figure 5.1). The AH1 starts from Tamu (a border town near India) and ends in Myawaddy (a border town near Thailand), while AH2 starts from Tachileik (a border town near Thailand), overlaps with AH1 at Meiktila, and ends at Tamu. Meanwhile, AH3 starts from Kyaing Tong, a town along AH2, and ends at Mong La (a border town near China).

Table 5.1. Data on Selected Sections of the ASEAN Highway in Myanmar

Route No.	Itinerary	Total Length (km)	Road Classification					Missing Link
			Primary	Class I	Class II	Class III	Below Class III	
AH1	Tamu–Mandalay–Meiktila–Yangon–Bago–Phayagyi–Thaton–Myawaddy	1,650	0	80	144	984	448	0
AH2	Meiktila–Loilem–Kyaing Tong–Tachileik	807	0	0	6	344	457	0
AH3	Mong La–Kyaing Tong	93	0	0	0	93	0	0
AH112	Thaton–Mawlamyine–Thanbyuzayat–Ye–Dawei–Lahnya–Khamaukgyi, Lahnya–Khlong Loy	1,145	0		20	84	981	60
AH123	Dawei–Maesamepass (Phu Nam Ron)	141	0	0	0	0	0	141

AH = ASEAN Highway
Source: Japan International Cooperation Agency (2014).

Figure 5.1. ASEAN Highway Network in Myanmar and Missing Road Links

Source: Myanmar Marketing Research and Development Co. Ltd.

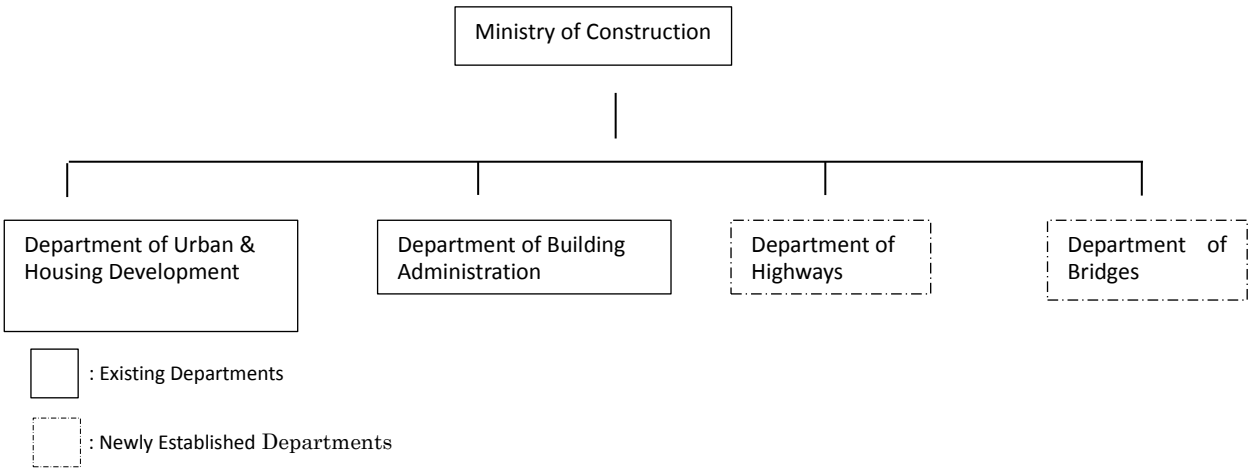
Both AH112 and AH123 are located in the southern part of Myanmar. The AH112 connects Lahnya to Khlong Loy (border town in Thailand), while AH123 connects Dawei to Phu Nam Ron (a border town in Thailand). The Department of Public Works under the Ministry of Construction is mainly responsible for the implementation and management of the highway network in Myanmar, including the ASEAN Highways.

- *Lahnya–Khlong Loy (This road connects the small seaside town in Southern Myanmar with the border town in Thailand)*
- *Dawei–Maesamepass (Phu Nam Ron) (This road connects Dawei, Capital of Southern Myanmar Region, with the border town in Thailand.)*
- *Tamu–Mandalay–Bago–Myawaddy (This road links from Tamu, a town at India–Myanmar border, with Myawaddy, a town in Myanmar–Thai border. It passes through major business cities such as Mandalay and Bago.)*
- *Meiktila–Loilem–Kyaing Tong–Tachileik (This road connects Central Myanmar with Eastern parts, which are linked to Thailand and China.)*
- *Kyaing Tong–Mong La (This road links Kyaing Tong, a town in Eastern Myanmar, with Mong La, a border down in Myanmar–China border.)*

There are four sections of the ASEAN Highway in Myanmar: AH1 through AH3, and AH14 (Muse–Mandalay) – covering a total length of over 3,000 km. Most sections are managed under B-O-T schemes by local companies under the authorisation of Myanmar's Department of Public Works. Construction of main roads and bridges in Myanmar is financed by the central government based on the national annual budgetary plan, with funds generated from tax levies on fuel and vehicles.

The Department of Public Works under the Ministry of Construction is the main implementing body for road and bridge construction in Myanmar (Figure 5.2). The department has drawn up a highway development strategy that consists of six consecutive 5-year plans. These plans further explain the strategy and implementation activities for the highway network in the next 30 years. On 1 April 2015, the Department of Highways and Department of Bridges were founded to construct new roads and bridges as well as maintain the existing ones.

Figure 5.2. New Organisational Chart of the Ministry of Construction

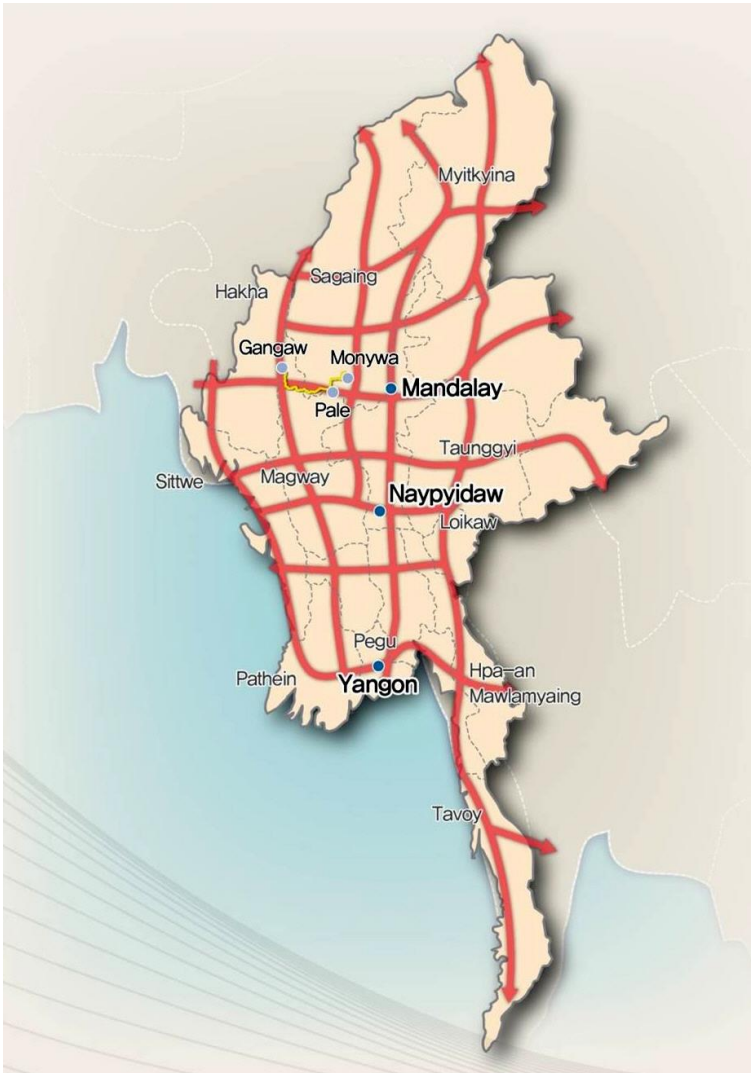


Source: Ministry of Construction (2015).

To connect with Myanmar's neighbouring countries, the Department of Public Works places a high priority on segments of the highway network that link to the regional networks: namely, the ASEAN Highway, the GMS Economic Corridor, the GMS Highway, and the Thai–Myanmar–India Tripartite Highways. By developing these segments, economic growth will be accelerated, improving international trade with neighbours.

To properly plan the road improvement and development, the Ministry of Construction has developed a master plan for the construction of an expressway network and sub-arterial roads nationwide (Figure 5.3). This plan was created through the cooperation of the Korea International Cooperation Agency and the Ministry of Construction.

Figure 5.3. Master Planning of the Highway Network in Myanmar



Note: In the text, 'Naypydaw,' 'Pegu,' 'Mawlamyaing', and 'Tavoy' are expressed as 'Nay Pyi Taw,' 'Bago,' 'Mawlamyaine', and 'Dawei,' respectively.
Source: Website of Yooshin Engineering Corporation.

The Yooshin Consortium, the project contractor of the Korea International Cooperation Agency, presented the plan, which included the arterial road network development project,[1] to the ministry in May 2015. The development project contains an extensive expressway network of 9,470 km, a main arterial road network (a union highway spanning 13,224 km), and a sub-arterial road network (national/region roads: 11,684 km). These have a total length of 34,378 km.

[1]In the *Global New Light of Myanmar*, 29 May 2015 (P. 9).

According to the master plan, about half (44.6%) of the total length will be developed in phases over the next 20 years.

The north–south routes include Pathein–Taungup–Sittwe; Ayeyarwady Region to Tamu through Magway Region and Chin State; Pyay–Magway–Monywa to Kalay; Yangon–Mandalay to Myitkyina; and Kawthaung to Myitkyina, passing through Mawlamyine, Thaton, Loikaw, Taunggyi, and Hsipaw. East–west expressways include Tamu–Bhamo, Mandalay–Pale, Sittwe–Tachileik, Loikaw–Nay Pyi Taw–Kyaukpyu, Taungup–Upper Bago, and Pyay–Hpa An. The 9,470 km expressway network will comprise a highway linking Yangon and Myitkyina in the northernmost state of Kachin.

To buttress the funds for road and infrastructure development, the Ministry of Construction borrowed US$208 million from the Japan International Cooperation Agency (JICA) under a 40-year term for the construction of bridges and roads; US$138 million from the Republic of Korea for the construction of the Yangon–Dala Bridge; and US$80 million from the Asian Development Bank (ADB) for upgrades on the Maubin–Kyaiklat Road in the Ayeyarwady Region (Soe, 2015).

2. Missing Road Links

2.1 Lahnya–Khlong Loy

The Lahnya–Khlong Loy link is part of the 60 km road that is not yet completed. The link is currently a gravel road, which might not be passable during the rainy season.

2.2 Dawei–Maesamepass (Phu Nam Ron)

The Dawei–Maesamepass link connects Dawei to Kanchanaburi in Thailand. It is part of the Mekong–India Economic Corridor, which connects Ho Chi Minh City, Phnom Penh, and Bangkok to Dawei. Through the Dawei deep sea port, the link will connect to Chennai in India by sea.

Given the potential of the Dawei deep sea port, Myanmar would connect not only South Asia, but also Africa and Europe, with East Asian countries.

The construction of the Dawei–Maesamepass (Phu Nam Ron) road link to the Dawei deep sea port will be implemented by the Italian–Thai Development Company from Thailand under a

B-O-T scheme. In the initial stage (2013 to 2017), a two-lane toll road will be built. From 2018 onwards, the 132 km link will be upgraded to a four-lane motorway (Apisitniran, 2015). The connection will feature a motorway of international standards and facilities for seamless border crossing. Pre-engineering work and access roads to the project site have already been completed.

At present, the link is a two-lane road with a total length of 141 km that connects Dawei and Kanchanaburi. It is considered an ASEAN Highway that can possibly connect to Mawlamyine in the north (the end of the East–West Economic Corridor). According to a discussion with government officials, the area's Dawei Special Economic Zone and deep sea port are progressing slowly. On 5 August 2015, the Myanmar government and private developers signed a concession agreement to start a smaller version of the Dawei Special Economic Zone that will include a paved two-lane road to Thailand (Hammond, 2015).

3. Links to Be Upgraded

3.1 Tamu–Mandalay–Bago–Myawaddy (AH1)

The AH1 is the longest section of the ASEAN Highway Network, running 20,557 km (12,774 mi) from Japan to Turkey. About 1,650 km of the primary Asian Highway route is within Myanmar's boundary, starting at Tamu at the India–Myanmar border, passing through the central part of Myanmar, and ending at the Thai–Myanmar border (Figure 5.4).

The Tamu–Mandalay section is an extension of the Mandalay–Monywa Road, while the Mandalay–Bago portion is part of the Yangon–Mandalay Highway. The route passes through Phayagyi (Bago Region) instead of Bago City, and ends in Myawaddy at the Thai–Myanmar border.

Apart from the upgrades to AH1 already completed by the Ministry of Construction, some additional upgrades and improvements will be financed by the Thai and Indian governments. For example, the 18 km-long roadway from Myawaddy to Thingan–Nyinaung has already been upgraded through the development assistance of the Thai government, while the 28 km stretch between Thingan–Nyinaung and Kawkareik is being built by the Thai government with

assistance from the ADB (ADB, 2015c) (Figure 5.5). This new road between Myawaddy–Kawkareik is meant to promote the East–West Economic Corridor.

Figure 5.4. Map of AH1 in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

Figure 5.5. Section of the New Thingan–Nyinaung–Kawkareik Road

Source: Photos taken by the author on 27 January 2016.

On the other side of Myanmar's border, the 144 km section between Tamu and Kalaymyo has already been upgraded through the development assistance of the Indian government (ADB, 2015b). Compared with other sections of the AH1 in Myanmar, the Tamu–Mandalay Road could be considered the worst part of the expressway. It can take up to 12 hours to travel from Mandalay to Tamu. The road is paved and in good condition from Mandalay to Monywa, but markedly inferior from Monywa to Kalaywa. Although the road has been paved by the government, it is currently a gravel road due to the soil condition. Commuters cannot even use

this road during the rainy season. The road from Kalaywa to Tamu, however, is in very good condition. Its development was made possible through the support of the Indian government.

The Mandalay–Bago section is a major part of the Yangon–Mandalay expressway, although it uses a smaller two-lane road to Phayagyi near the Yangon end of the highway.

The Yangon–Mandalay expressway opened in December 2010 (Figure 5.6). Although this 587 km expressway has reduced the travel time between Yangon and Mandalay, it does not have many of the safety features found in international highways such as roadside reflectors and rumble strips to alert drivers when their vehicles are leaving the road. Such oversight led to a number of accidents every year. Therefore, the Ministry of Construction has put up many signs and speed control systems along the expressway to remind drivers to drive safely.

Figure 5.6. Section of the Yangon–Mandalay Expressway

Source: Myanmar Marketing Research and Development Co. Ltd.

In December 2014, the Ministry of Construction called for expressions of interest for a project to double the width of the highway from four lanes to eight lanes and improve its support infrastructure under a B-O-T scheme (Kyaw Hsu Mon, 2014).

The Yangon–Mandalay expressway is only for passenger cars and buses. Cargo trucks still use the old Yangon–Bago–Mandalay highway, which is longer than the Yangon–Mandalay

expressway. Thus, the ministry also plans to upgrade the Yangon–Bago–Mandalay highway – which can be used by all types of vehicles – from two lanes to four lanes.

Phayagyi Junction is 60 km away from the first toll gate of the Yangon–Mandalay highway (Yangon Region). It is a two-lane paved concrete road that connects the highway to AH1 from Myawaddy (Figure 5.7). The Phayagyi–Myawaddy road passes through Thaton, HPa–An and Kawkareik before ending in Myawaddy at the Thai–Myanmar border (Figure 5.8). This two-lane asphalt road until Kawkareik is classified as a Class II road.

Figure 5.7. Yangon–Mandalay Highway at Phayagyi Junction

Source*:* Myanmar Marketing Research and Development Co. Ltd.

Figure 5.8. Road Conditions at the Phayagyi–Myawaddy Section of AH1

Source: Myanmar Marketing Research and Development Co. Ltd.

A 45.5 km stretch from Myawaddy to Kawkareik was officially opened on 30 August 2015, shortening the distance from Kawkareik to Thingan–Nyinaung from 45 km to 28 km. Its improved road condition has also eased the overall trade traffic (unlike in the past when transportation between Myawaddy and other parts of Myanmar used to be possible only on alternate days). This new road also bypasses the Kawkareik town and links straight to the Kawkareik–Eindu road.

The Ministry of Construction will also upgrade a 66.4 km section of the road connecting the towns of Eindu and Kawkareik in the state of Kayin via a US$100 million loan from the ADB (ADB, 2015c). This road is the missing link of the GMS East–West Economic Corridor. Once complete, the road will link Danang in Viet Nam with Mawlamyine and Yangon.

Aside from the ADB-initiated project, a rehabilitation project on the section between Eindu and the main Yangon–Mawlamyine Highway is under way through a government-managed B-O-T concession operated by a private company in Myanmar. The Eindu–Kawkareik upgrade will bring the existing two-lane road up to the GMS road network's standards, adding paved shoulders suitable for bicycles, motorcycles, and agricultural vehicles.

Meanwhile, apart from the improvement projects on the road that connects Myanmar to Thailand, there is also a need to build a new bridge between Myawaddy and Mae Sot, Thailand. The current bridge allows crossing trucks of up to 25 tons only. Thus, vehicles over 25 tons need to transfer their loads to smaller trucks before crossing the Thai–Myanmar Friendship Bridge at the Myawaddy–Mae Sot Border.

The Second Myawaddy Friendship Bridge has been designed and budgeted by the Thailand government, with construction aimed to start in 2016. This new bridge will be able to handle trucks carrying loads of up to 60 tons.

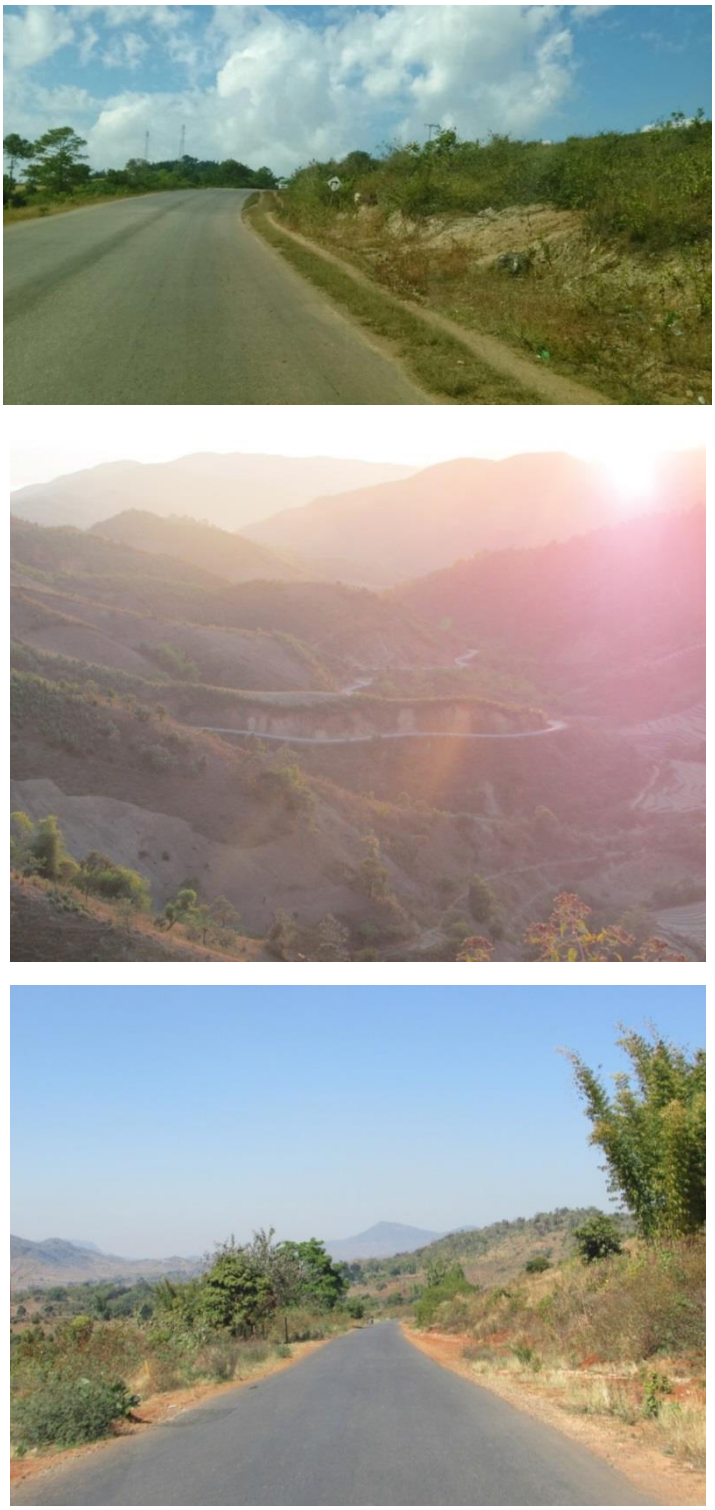
Other plans to ease cross-border trade include the possible relocation of the Myawaddy Industrial Zone to a site beside the Myanmar side of the bridge. The Thai side of the bridge is already situated next to the new Mae Sot Special Economic Zone.[2]

3.2 Meiktila–Loilem–Kyaing Tong–Tachileik (AH2)

The Meiktila–Loilem–Kyaing Tong–Tachileik route links the central part of Myanmar to the mountainous region of Shan State. It starts from Tachileik, the eastern town of the Thai–Myanmar border, and connects to the Yangon–Mandalay Expressway in Meiktila (Figures 9–10), which further links AH1 to Tamu, a town at the India–Myanmar border. Since this road passes through the Shan plateau, it is narrow. It is also hilly and remote in some parts. Clearly, the construction of better roads can help areas in their ongoing economic development.

[2] Interview with an official from the Ministry of Construction on 5 February 2016.

Figure 5.9. Sections of AH2 in Myanmar



Source: Myanmar Marketing Research and Development Co. Ltd.

Figure 5.10. Map of AH2 in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

The road between Meiktila and Taunggyi is a two-lane paved road that becomes winding when it begins to climb the Shan plateau. The road from Taunggyi to Kyaing Tong is over 400 km long and passes through Loilem. It is winding as well, and takes eight hours to reach Kyaing Tong from Taunggyi. Improvements on the section from Kyaing Tong to Tachileik are being undertaken by a national company under a B-O-T scheme.

Meanwhile, the Kyaing Tong to Tachileik section has been paved and upgraded to ASEAN Class III standards (Umezaki, 2012). The road from Tachileik to Kyaing Tong is in good condition and takes three hours only to traverse by car. Tachileik–Mae Sai is one of the major trade posts between Myanmar and Thailand, as well as a tourist attraction due to its location in the Golden Triangle Area.

3.3 Kyaing Tong–Mong La (AH3)

In Myanmar, AH3 links Tachileik, Kyaing Tong, and Mong La. The Mong La to Kyaing Tong section (Figures 11–12) has been upgraded to a two-lane bituminous road by the Department of Public Works.[3] The distance from Kyaing Tong to Mong La is 93 km only.

Figure 5.11. Sections of AH3 in Myanmar

[3] Interview with a local official of the Ministry of Construction on 14 December 2015.

Source: Myanmar Marketing Research and Development Co. Ltd.

Figure 5.12. Map of AH3 in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

4. Regulations for Technical Requirements

The Road Transport Administration Department (RTAD) under the Ministry of Rail Transportation is responsible for vehicle requirements and inspections for road worthiness. Apart from inspections, the department also provides testing and issuing services for driving licences, issues traffic regulations, levies taxes, and collects revenues.

Highways in Myanmar, meanwhile, are built according to the basic principles of Highway Design that the Department of Public Works under the Ministry of Construction had developed. Union Highways and main roads, including ASEAN Highways, are under the control of the Ministry of Construction, although roads are constructed in collaboration with several other ministries.

Myanmar has set length, width, and height requirements similar to those outlined by the ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT) (Table 5.2). However, for bigger vehicles such as five- and six-axle articulated vehicles, Myanmar does not follow the weight limits set by the AFAFGIT. Myanmar has set 45 tons for the five-axle vehicle and 48 tons for the six-axle counterpart instead of the AFAFGIT-prescribed 36 tons and 38 tons, respectively.

Table 5.2. Comparison of Vehicle Requirements; Maximum Permissible Gross Vehicle Weights

Vehicle Requirements	Myanmar	AFAFGIT
Maximum Length (Rigid Motor Vehicle)	12.2 m	12.2 m
Maximum Length (Articulated Vehicle)	15.2 m	16.0 m
Maximum Width	2.5 m	2.5 m
Maximum Height	3.66 m (Normal)	4.2 m
Maximum Number of Axles	6	
Maximum Axle Load	48.0 tons	
Maximum Rear Axle Load	ROH < 60% of WB	ROH < 60% of WB

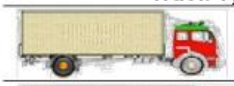
Maximum Permissible Gross Vehicle Weight	Myanmar	AFAFGIT
3-Axle Rigid Vehicle	21.0 ton	21.0 ton
4-Axle Rigid Vehicle	25.0 ton	25.0 ton
4-Axle Articulated Vehicle	31.0 ton	32.0 ton
5-Axle Articulated Vehicle	45.0 ton	36.0 ton
6-Axle Articulated Vehicle	48.0 ton	38.0 ton

AFAFGIT = ASEAN Framework Agreement on the Facilitation of Goods in Transit; ROH = rear overhang; WB = wheel base.
Source: Road Transport Administration Department (2015).

Myanmar needs a large road works programme that covers maintenance of road networks over time. Due to the poor quality of the materials used, repair and rehabilitation are generally needed as frequently as every few years to maintain or improve road quality. A lack of funding also contributes to the poor state of the road network.

The setting of weight limit on vehicles helps extend the quality of roads. As shown in Figure 5.13, Myanmar has been reducing its total permissible vehicle weights after 2015. However, these larger vehicles have not yet followed the criteria set by AFAFGIT.

Figure 5.13. Allowable Loads by Truck Type

Truck Type	Axle and Wheel Configuration	Total Allowable (Tons) (Before 2015/ After 2015)	Post 2015 Damage Factor if Legally Loaded (ESAL)	Damage Factor if 15% overloaded (ESAL)
	2 axles, 6 tires	16/15	1.88	3.3
	3 axles, 10 tires	23/21	2.25	3.9
	4 axles, 12 tires	30/25	3.2	5.5
	4 axles, 14 tires	33/31	3.9	6.8
	5 axles, 18 tires	46/45	6.9	12.0
	6 axles, 22 tires	51.5/48	5.8	10.1

ESAL = equivalent single-axle load
Source: Department of Public Works.

5. Road Signages Specific to Myanmar

As the department that sets rules and regulations related to driving and road safety, the RTAD also issues traffic and road signs to educate the public.[4]

Figure 5.14 shows the highway road signs used in Myanmar. The first two signs warn of sharp curves in the road ahead. The third and fourth signs warn of left and right turns. The fifth sign alerts drivers that the divider is about to end, while the sixth alerts them that they are approaching a divider. Figure 5.15 shows photos of these road signs.

Figure 5.14. Highway Road Signs in Myanmar

Source*:* Road Transport Administration Department.

[4] See Road Transport Administration Department website.

Figure 5.15. Examples of Highway Road Signs in Myanmar

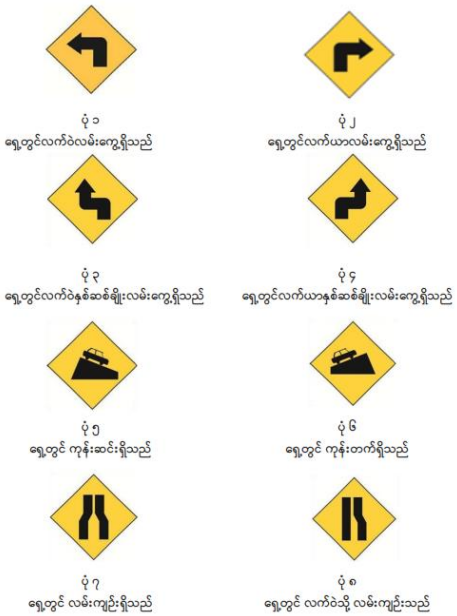
Source*:* Myanmar Marketing Research and Development Co. Ltd .

Warning signs in Myanmar are common symbols such as those adopted by other countries, including Thailand, Malaysia, Japan, and the United States. Figure 5.16 shows some of the most common warning signs in Myanmar. The first two signs indicate turn left/turn right, while the third and fourth signs indicate double turns. The fifth and sixth symbols indicate steep climb and steep decline. The seventh indicate that the road will narrow ahead, while the eighth indicates that the road will narrow to the left. Photos of highway road signs in Myanmar are shown in Figure 5.17.

Signs are normally put up along accident-prone areas. Apart from international signs, huge signboards with large white letters on red backgrounds are installed to alert drivers (Figure 5.18). Myanmar also uses red and white pillars to indicate turns, as well as white strips to indicate that vehicles should slow down ahead, as shown in the last photo in Figure 5.18. The Yangon–Mandalay Highway has many signs to alert drivers and passengers. However, roads

along the Phayagyi Junction towards Myawaddy have little or no signage, which suggests that there are fewer accidents occurring on these roads than on highways.

Figure 5.16. Highway Road Signs in the International Community and in Myanmar



Source: Ishida (2015) and Road Transport Administration Department.

Figure 5.17. Examples of Highway Road Signs in Myanmar

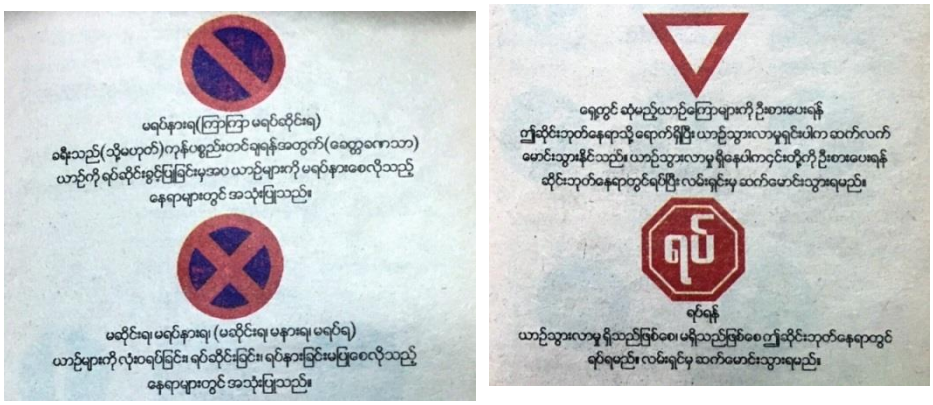
Source: Myanmar Marketing Research and Development Co. Ltd.

Figure 5.18. More Examples of Highway Road Signs in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd

Regulatory signs are shown in Figure 5.19, and a photo of a sign used in Myanmar is shown in Figure 5.20.

Figure 5.19. Regulatory Signs in International Communities and in Myanmar



Source: Ishida (2015) and Road Transport Administration Department.

Figure 5.20. An Example of a Regulatory Sign in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

Prohibitory or restrictive signs are generally used to prohibit certain types of vehicles or specific actions by drivers. Figure 5.21 shows a comparison of international signs and those used in Myanmar. Figure 5.22 are photos of prohibitory/restrictive signs used in Myanmar.

Figure 5.21. Prohibitory/Restrictive Signs in International Communities and in Myanmar

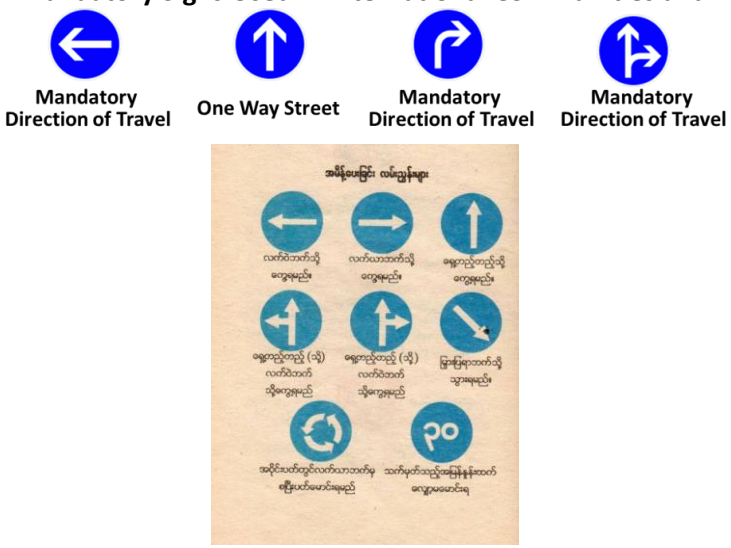
Source: Ishida (2015) and Road Transport Administration Department.

Figure 5.22. Examples of Prohibitory/Restrictive Signs in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

Mandatory signs are used when drivers must follow strict instructions. Figure 5.23 shows a comparison of international signs and those used in Myanmar, while Figure 5.24 is a photo of a mandatory sign used in Myanmar.

Figure 5.23. Mandatory Signs Used in International Communities and in Myanmar



Note: The first four signs are used internationally, while the next eight signs are those found in Myanmar with text in the local language.

Source: Ishida (2015) and Road Transport Administration Department.

Figure 5.24. An Example of a Mandatory Sign in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

Information signs are typically used to show directions towards upcoming cities or towards, sometimes accompanied by details on distance. Figure 5.25 shows actual examples of information signs used in Myanmar.

Figure 5.25. Examples of Information Signs in Myanmar

Source: Myanmar Marketing Research and Development Co. Ltd.

6. Road Transport Laws in Myanmar

Road and motor vehicle laws in Myanmar have existed since 1914 under the British colonial period. Laws, rules, and regulations enacted from 1914 to 2015 were:[5]

India Motor Vehicle Act (1914)

Myanmar Motor Vehicle Act (1915)[6]

- *Myanmar Hired Vehicle Rules (1935)*
- *Road and Inland Water Transport Law (1963)*
- *1964 Motor Vehicle Law (enacted by the Chairman of the Revolutionary Council into Law No. 17 in 1964)*
- *1989 Motor Vehicle Rules (issued by the Ministry of Transport and Communications via Notification No. 1/89)*
- *Procedures for Vehicle Registration and Issuing of Driving Licenses (1994)*
- *Highway Law (2000)*
- *Motor Vehicle Law (2015)*
- *Road Transport Law (2016)*[7]

The Myanmar Motor Vehicle Act (1915)[8] enacted in April 1915 was the first automobile law in Myanmar. This act was based on the India Motor Vehicle Act, which focused on the prohibition of underage driving, the usage of licences, and driving penalties.

The 1964 Motor Vehicles Law (Kato et. al, 2010) covers the registration of motor vehicles, licences for owning motor vehicles, motor vehicle insurance, driving licences, control of traffic speed, and offences and penalties for violations. The 1989 Motor Vehicle Rules were enacted under Section 33 of the 1964 Motor Vehicles Law. These rules include the registration of motor vehicles, vehicle maintenance, driving licences, driver training schools, terms and conditions of hired motor vehicles, and traffic rules for vehicles, pedestrians, and cyclists.

[5] Road Transport Administration Department website.
[6] Refer to the World Legal Information Institute website.
[7] The website of 'The Mirror'.
[8] The website of 'The Public's Library and Digital Archive'.

The Highway Law (2000)[9] was enacted in November 2000 by the State Peace and Development Council to foster improved communication and transportation between states and regions, and to support the construction of highways that connect neighbouring countries. The law explicitly defines the duties and authorities of the Ministry of Construction as well as the Department of Public Works. According to Article 4 of the law, the duties of the Ministry of Construction include the following:

- *Constructing highways that connect to neighbouring countries, with the approval of the Myanmar government;*
- *Laying out work programmes to construct and extend highways, and if necessary, coordinating with the relevant governments' departments or organisations;*
- *Exchanging technical know-how and cooperating with international organisations, regional organisations, and foreign countries in relation to highway construction;*
- *Carrying out research on the construction, maintenance and repair of highways.*

The duties and powers of the Department of Public Works are explicitly stated in Article 5. These include the following:

- *Implementing the policies set by the Ministry of Construction for modernisation and development of communication within the State;*
- *Drawing up and submitting short-term, long-term, and special plans and work programmes for the Ministry of Construction in relation to the construction and extension of highways.*

The article also provides that the department stipulates the type and weight of vehicles allowed on highways:

> *Prescribing types of vehicles, including wheels, laden weight, and type of rims permitted on highways, and inspecting, supervising, and taking action as to whether such stipulations are abided by.*

It also details penalties, which include fines, jail terms of up to three years, or both, for offences related to building or damaging property within highway boundaries.

[9] Website on the Highway Law.

The new Motor Vehicle Law[10] was enacted in September 2015 to promote safety through a stricter driving process, to resolve existing traffic problems, and to tackle air pollution caused by automobiles. It introduced a number of changes. Under the new law and its by-laws, the Ministry of Commerce plans to cease importation of right-hand drive vehicles in 2018, as Myanmar is currently a right-hand driving country. In Article 76, the minister:

> *To use only left-hand drive vehicles suitable for the right-hand driving system in order to prevent danger.*

The law prescribes the duties of the RTAD, which include the import and registration of vehicles. It also details the powers of the RTAD registration officer to suspend or revoke licences and provides a list of prohibitions (such as disallowing individuals to establish an automobile training school without a licence).

Meanwhile, the Ministry of Rail Transportation is tasked to provide the associated rules and regulations on cross-border transportation amongst neighbouring countries. Article 40 states:

> *The ministry is to perform the following in agreement with the Union Government:*
>
> *Classify the type, year, and number of exported vehicles;*
>
> *Organise the places allowed based on the type of vehicles;*
>
> *Establish the rules related to the national and cross-border transport of goods and people.*

Penalties for offences, including jail terms and fines of up to MK5 million are described. To promote road safety, this law also supports the authority of the traffic police to check vehicles and drivers.

The Land Transport Law was enacted on 5 January 2016 to improve the overall systematic development of land transport, set rules and regulations, reduce environmental degradation related to land transport, and facilitate efficient cross-border transportation. The National Committee, headed by the Minister of Rail Transportation, was formed to manage, develop and improve the efficiency of domestic and cross-border transport. The Land Transport Administration Committee and the Cross-Border Land Transport Administration Committee are to be formed to implement the rules, regulations, and policies of the National Committee.

[10] See the Website of the Public Library and Digital Archive.

Meanwhile, the Cross-Border Land Transport Administration Committee is mandated to set up border inspection offices for both goods and people.

Chapter 8 of the law explicitly mentions the criteria of persons who operate cross-border land transport companies in Myanmar. Article 26 (B) states that citizens of Myanmar must own more than half of the investment and take more management roles than foreign investors for any joint venture projects. In addition, they must have experiences in the cross-border transport of both goods and people and obey both domestic and international laws and regulations.

Chapter 9 clearly details the roles and responsibilities of persons who operate transport services, which include the documentation of goods, insurance policies, and compensation for any lost goods.

Article 27 also mentions that persons can apply for a cross-border land transport licence at the RTAD. Article 33 details the criteria needed for foreign vehicles to transport goods and people in Myanmar. Chapters 11 to 14 specify the restrictions, offences, penalties, and appeal processes for persons who operate domestic and cross-border land transport companies. Chapter 15 also briefly mentions cross-border legal rights in the case of lost goods. This law repealed the licences endorsed by the Road and Inland Water Transport Law (1963); therefore, existing licences must be renewed according to the new law.

7. Conclusion

The transport sector can help define Myanmar's economic development. For one, the country has the potential to grow into a main logistics hub of Asia, connecting China, India, and the rest of the Southeast Asia. The ongoing highway development and upgrading projects can promote the overall livelihood of both the people living around the highways and those in designated rural areas. An efficient transport sector will also improve trade and reduce the overall poverty in Myanmar.

Today, Myanmar has been following the international standards on road and traffic signs recognised by neighbouring countries. It uses road signs similar to those in Thailand and Germany, for instance.

However, the existing conditions of all sections of the ASEAN Highways in Myanmar currently fail to meet the ASEAN Highway standards. Myanmar's overall road condition needs to be improved. As part of the region's road network, Myanmar has to have a road transport system that is as efficient and reliable as those of neighbouring countries (such as India, China, and Thailand). Since Myanmar is growing faster than its existing infrastructure can support, long-term investment and extensive financial planning are required to support the ASEAN Economic Community and sustain the ongoing development.

Although the government has long-term plans and strategies in place for the transport sector, an effective financial plan is the key to getting more projects off the ground. To date, given the limited budget of the Union government, the support from the international community and participation of the private sector are crucial.

There, too, is the issue with capacity building. Although the Department of Public Works has been able to extend and rehabilitate the highway network in Myanmar despite limited financing, the department itself has not meet the capability requirements. Because Myanmar has to raise its highway standards, the department has to build its capacity accordingly through the support of both private and public organisations as well as learn to partner with parties that have strong technical expertise.

The RTAD continues to support all the institutional initiatives related to the road and transport sector. In 2011, it abolished the fuel subsidisation system (ADB, 2014). From 2012 to 2013, it gradually facilitated the importation of foreign vehicles and reduced their import costs. However, one persistent issue that it must address in coordination with the Department of Public Works is the excessive cargo loading by transport vehicles, as this is one of the causes of road deterioration.

Thus, the RTAD should focus on improving and establishing new regulations, along with signing cross-border transport agreements with neighbouring countries to facilitate trade and potential investments.

References

Apisitniran, L. (2015), '*ITD Wants Bigger Dawei Budget'.* In http://www.bangkokpost.com/news/asean/791381/itd-wants-bigger-dawei-budget (accessed 16 December 2015).

Asian Development Bank [ADB] (2014), 'Maubin-Phyapon Road Rehabilitation Project: Report and Recommendation of the President'. In http://www.adb.org/sites/default/files/linked-documents/47086-002-ssa.pdf (accessed 16 December 2015).

Asian Development Bank [ADB] (2015a), 'Greater Mekong Subregion East–West Economic Corridor Eindu to Kawkareik Road Improvement Project: Report and Recommendation of the President'. In http://www.adb.org/projects/documents/mya-gms-ewec-eindu-kawkareik-road-improvement-project-rrp and http://www.adb.org/sites/default/files/linked-documents/46422-003-ssa.pdf (accessed 20 November 2015).

Asian Development Bank [ADB] (2015b), 'Thailand's Economic Integration with Neighboring Countries and Possible Connectivity with South Asia'. In http://www.adb.org/sites/default/files/publication/159839/adbi-wp520.pdf (accessed 20 November 2015).

Asian Development Bank [ADB] (2015c), 'ADB Loan to Help Upgrade Road in Kayin State on GMS Corridor Route'. In http://www.adb.org/news/adb-loan-help-upgrade-road-kayin-state-gms-corridor-route (accessed 20 November 2015).

Hammond, C. (2015), 'Government Signs Dawei Agreement With ITD-Again', *The Myanmar Times.* In http://www.mmtimes.com/index.php/business/15872-government-signs-dawei-agreement-with-itd-again.html (accessed 4 December 2015).

Japan International Cooperation Agency [JICA] (2014), 'The Survey Program for the National Transport Development Plan in the Republic of the Union of Myanmar'. In http://open_jicareport.jica.go.jp/pdf/12230728_02.pdf (accessed 3 December 2015).

Kato, H., N. Saito, A. Inagi, and U.A. Myint (2010), 'Regulatory Framework and Operational System of Urban Bus Transportation in Yangon, Myanmar'. In http://www.trip.t.u-tokyo.ac.jp/kato/papers_e/2010TRB_Yangon.pdf (accessed 3 December 2015).

Myint, K.S. (2009), 'Today's Vehicles and Motorways in Myanmar', *The New Light of Myanmar*. Dated 9 November 2009 (accessed 16 November 2015).

Kyaw Hsu Mon (2014), 'Government Calls For Foreign Investment in 'Death Highway' Upgrade', *The Irrawaddy*. In http://www.irrawaddy.com/business/govt-calls-foreign-investment-death-highway-upgrade.html (accessed 16 November 2015).

Ministry of Construction (2015), *Business Matching Workshop: Construction Sector*. In http://www.smedevelopmentcenter.gov.mm/sites/default/files/MOC1.pdf (accessed 3 December 2015).

Soe, A.M. (2015), 'Building Better Roads', *The Global New Light of Myanmar*. Dated 21 November 2015 (accessed 24 November 2015).

The Global New Light of Myanmar (2015), 'KOICA-Funded Master Plan For Arterial Road Network Development in Myanmar Launched'. In

http://www.burmalibrary.org/docs21/GNLM2015-05-29.pdf (accessed 16 November 2015).

Umezaki, S. (2012), 'Building the ASEAN Economic Community: Challenges and Opportunities for Myanmar'. In http://www.ide.go.jp/English/Publish/Download/Brc/pdf/10_08.pdf, IDE–JETRO (accessed 17 November 2015).

World Bank (2015), 'Logistics Performance Index'. In http://lpi.worldbank.org/international/global.

Websites

The Highway Law. In http://displacementsolutions.org/wp-content/uploads/THE-HIGHWAYS-LAW-2000.pdf (accessed 16 December 2015).

The Mirror. In http://www.burmalibrary.org/docs21/km%209.1.16.pdf 09 (accessed January 2016)

The Public's Library and Digital Archive. In http://www.burmalibrary.org/docs16/Burma_Code-Vol-VII-text_under_image.pdf (Accessed 16–17 December 2015).

Road Transport Administration Department, In http://www.myanmarrtad.com/ (accessed November 16, 2015).

World Legal Information Institute. In http://www.worldlii.org/cgi-bin/sinosrch.cgi?meta=%2Fworldlii&query=motor%20vehicles&method=auto&mask_path=mm (accessed 14 December 2015)

Yooshin Engineering Corporation. In http://www.yooshin.co.kr.