

# Current Situation of Maritime Transport and Logistics in Myanmar

S. N. S. Thein, H. L. Yang, Z. B. Liu

**Abstract**—There are many modes of transport. Among them, maritime transport is a major transportation mode of international trade. In the Republic of the Union of Myanmar (Burma), water transportation served as one of the most important modes of transport for country's exports and imports. Getting the accurate information and data-gathering activity are the most important aspects for any study field. Therefore, in this research, a historical review of the development of ports in Myanmar and how they have changed had been carried out. All the relevant literature and documents have also been reviewed, studied, and organized. The sources of collected data are from reports, journals, internet, as well as from the publications of authorized organizations and international associations. To get better understanding about real situation of maritime transport and logistics in Myanmar; current condition of existing ports, expansion and ongoing projects, and future port development plans are described successively. Hence, the main purpose of this study is to build up a comprehensive picture of maritime transport and logistics, in addition to border trade within ASEAN and Myanmar. It will help for academic researchers, decision makers, and stakeholders for national planning as well as for the local and foreign investors to recognize current situation of maritime transport and logistics in Myanmar.

**Keywords**—ASEAN, border trade, logistics, maritime transport, ports of Myanmar.

## I. INTRODUCTION

Maritime transport and logistics infrastructure are vital components for the sustainable development of the nation. Ports are the gateway to access global trading partners and maritime transport is one of the most cost-effective modes of transport over long distances. Port development is an important process for any country to get involved in international trade. Therefore, port development and port reform are essential components of a country's economic prosperity [1]. For developing its economy and international trade, Myanmar is facing many challenges as a developing country [2]. Thus, Ministry of Transport and Communications (MOTC) has given great emphasis to the sectors development in order to support the economic and social development of country [3]. In this study, recent condition of existing ports in Myanmar and their capacity are described firstly. And then, ongoing projects and future port development plans are explained with their potential sites. After that, the important of strategic location, Myanmar will become a new hub of Southeast Asia and related economic corridors within the regions are specified.

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The benefits of development of ports and logistics infrastructures, and challenges are discussed in the last section.

## II. PORTS OF MYANMAR

### A. Current Situation

Myanmar has a long coastline of 2,228 kilometers bounded at the west by the Bay of Bengal and on the south by the Andaman Sea. As shown in Fig. 1 there are nine ports for the coastal and international maritime traffic. All ports are administrated by Myanma Port Authority (MPA), under the MOTC. Except Yangon port, all the rest ports are known as Out-ports, and they are predominately handling most of the coastal traffic and very few amount of international traffic.

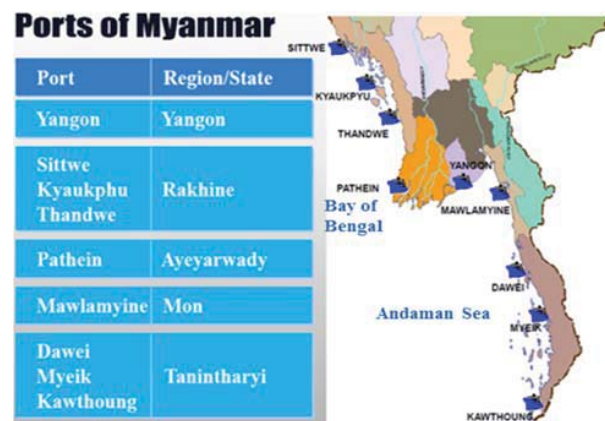


Fig. 1 Ports of Myanmar [4]

Major Port of Myanmar, Yangon port, is handling more than 90% of maritime export and import seaborne trade [4]. It can be divided into two main areas: Yangon inner harbor terminals and outer Thilawa port, 16 km far from each other. Fig. 2 describes the location of two ports along the Yangon River. Yangon port is accessible to vessels of up to overall length of 167 m, draft around 9 m and 15,000 DWT. Thilawa port can be accessible to vessels of 200 m LOA, 9 m draft, and 20,000 DWT. While the maritime cargo traffic has significantly increased over the last two decades, more terminals and facilities have been developed in both Yangon and Thilawa areas [5]. Now, there are 26 vessels at Yangon inner harbor and 10 at the Thilawa area: total of 36 vessels at the same time can accommodate at

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Yangon port. Currently, 46 vessels from 20 container shipping lines usually utilize Yangon port for trading directly with 10 countries from Asia and South-East Asia [5].

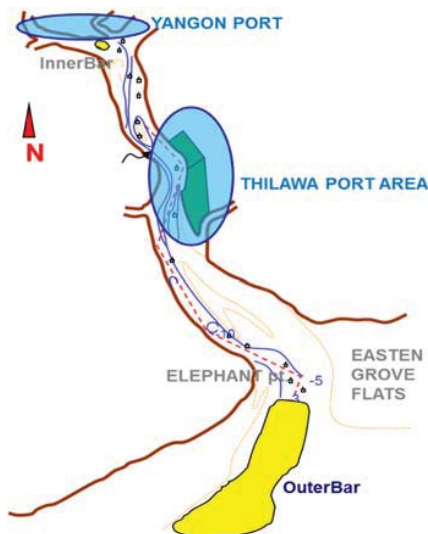


Fig. 2 Yangon and Thilawa Port Area [4]

The performance of ports and terminals is important because it affects a country’s trade competitiveness. To reduce the maritime transport costs, improvements in port infrastructures and private sector participation are also important [6]. Therefore, port development has been carried out by inviting local and foreign investment at Yangon and the Thilawa port area. After changing the official regulations and making better facilities for all ports in Myanmar in 1998, private sectors were invested in port industry. Now, ownership ration of quay length in Yangon port is 25% owned by public and 75% owned by private, national investors and foreign investors.

Detailed information of wharfs and terminals at Yangon and Thilawa port area is collected as much as possible, including quay length, apron width, vessel size, backup area, cargo handling capacity etc. In this study, number of vessels calling and total number of TEU for recent 10 years are shown in Figs. 3 and 4 respectively. The number of vessels calling at Yangon Port was 2335 and container throughput was more than 500,000 TEU in the 2016-17 fiscal years. From those figures, both the number of vessels calling and container throughput are gradually increased year by year.

*B. Physical Limitation*

There are some navigational issues along the Yangon River and its approached channel while Yangon inner harbor and Thilawa port are river ports. There are two restraint areas along the approached channel, called inner bar and outer bar. The vessels entering the Thilawa port are restricted by outer bar and the vessels entering the Yangon inner harbor are restricted by both bars. To obtain the adequate water depth, all the vessels entering to the Yangon River have to wait high tide. Moreover, dredging work has been carried out daily in the inner harbor to

get sufficient depth, and rearrangement of navigation signals also has been carried out at outer bar when necessary [4].

The efficiency in cargo handling at Yangon Port has reached up to almost 70% which will be optimum capacity of the port. Due to some restricted facts such as limited water depth, significant tidal variations, relatively narrow channel, limited backup area, insufficient capacity and efficiency of both transport and cargo handling, it is obviously needed to upgrade existing ports and to construct new deep sea ports.

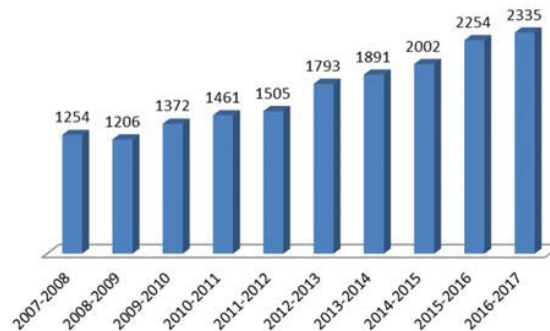


Fig. 3 Number of vessels calling at Yangon Port (including Thilawa Terminals) (2007-08 to 2016-17)

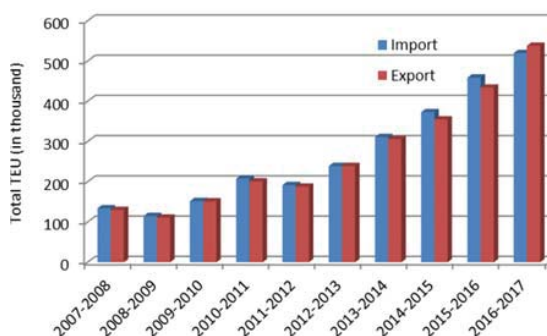


Fig. 4 Volume of container handling in Yangon Port (including Thilawa) (TEU in thousand) (2007-08 to 2016-17) [5]

*C. Upgrading of Existing Ports*

MPA is planning to implement the Yangon Port Improvement Project which will be able to accommodate bigger size vessels up to 35,000 DWT at Yangon Port and Thilawa Port [8]. In parallel, it may need to upgrade existing port infrastructure which shall include wharf strengthening, installation of modern cargo handling facilities, providing navigation aids and other related facilities to cater for 35,000 DWT vessels and to cope with the growth of seaborne cargo traffic. MPA has been planning to conduct a detailed feasibility study on Yangon River improvement and strengthening of existing port facilities by inviting foreign and local interested parties to cooperate.

For the development of Thilawa port area, there are 37 water front land plots allocated in the form of build, operate and transfer (BOT) system and joint ventures (JV). Meanwhile, 10 plots were developed and additional 20 plots are under construction. Thilawa Special Economic Zone (SEZ), next to

the Thilawa Port Area is also developed and half of them are invested by Japanese companies, and the rest are invested by Myanmar, Thailand and other countries [7].

#### D. Deep Sea Ports

As Yangon port is a river port, all vessels calling are constrained by size and draft of the vessels. So, it is obviously seen that we need deeper and wider ports for larger vessels [4]. Therefore, MPA has been inviting potential investors for the economic development of the country by encouraging the enhancement of the deep sea ports and related infrastructure together with developing of transportation infrastructure which will support not only for the regional development but for the whole country [8]. There are some potential projects related to implementation of the deep seaports along Myanmar coastline.

Among them, Kyauk Pyu (western part of Myanmar) and Dawei (Southern part of Myanmar) deep sea ports are on-going projects. Kyauk Pyu Deep Sea Port is the most appropriate approach to cope western corridor. It could save sailing distance about 5000 km compared with existing sea route through Malacca Strait to China East Coast. It is the shortest route from India to China and also a main outlet of ocean route for land locked regions' trade. There are two maritime infrastructure development projects. Oil and gas terminal, joint project with China, has been already finished and oil and gas are transported by pipe lines from Kyauk Pyu Deep Sea Port to Yunnan Province, China. Economic and technological development zone and Railway projects are under construction. The location of deep sea ports and neighboring countries are shown in Fig. 5.



Fig. 5 Neighboring countries of Myanmar and Location of deep sea ports [9]

Dawei Deep Sea Port project is also a joint project between Myanmar and Thailand. There will be a deep sea port, industrial zone, and road and rail links to Thailand. Thus, this area will serve as hub connection to Greater Magong sub-regions (GMS), south and south-east Asia countries. This can lessen the dependence on the congested Straits of Malacca and reduce transportation and logistics costs as well [5].

### III. BORDER TRADE OF MYANMAR

Myanmar shares borders with five neighboring countries as shown in Fig. 5. Border trade has been increasing gradually year by year, particularly with Thailand and China [9]. The geographical location of the country itself is favorable to be a land-bridge connecting Southeast Asia and south Asia as well as with India and China. Myanmar will become a new hub of Southeast Asia because of its advantage of strategic location. The development of cross-border routes in inland areas was also beginning to advance rapidly.

Many road and rail sections of regional economic corridors such as Asian Highway (AH) Network and Trans-Asian Railway (TAR) Network are across the country. In Fig. 6, the routes of Asian Highway and Trans-Asian Railway around the region are integrated. The distance between Dawei to Myanmar-Thai border is about 170 km and Dawei to Bangkok is only about 360 km. Once fully complete, this road will have up to eight lanes of international standard highway linking Dawei to the Myanmar-Thai border. The road will reach the GMS Southern Corridor that leads to Vung Tau and Quy Nhon in Vietnam through Sisiphon in Cambodia via Bangkok in Thailand [2]. Greater Mekong Sub-regions (GMS) countries are working on some agreements to reduce barriers for border crossing [9]. Moreover, one of the economic corridors of Belt and Road Initiative (BRI), Bangladesh-China-India-Myanmar Economic Corridor (EC) is also passing on Myanmar as shown in Fig. 7.

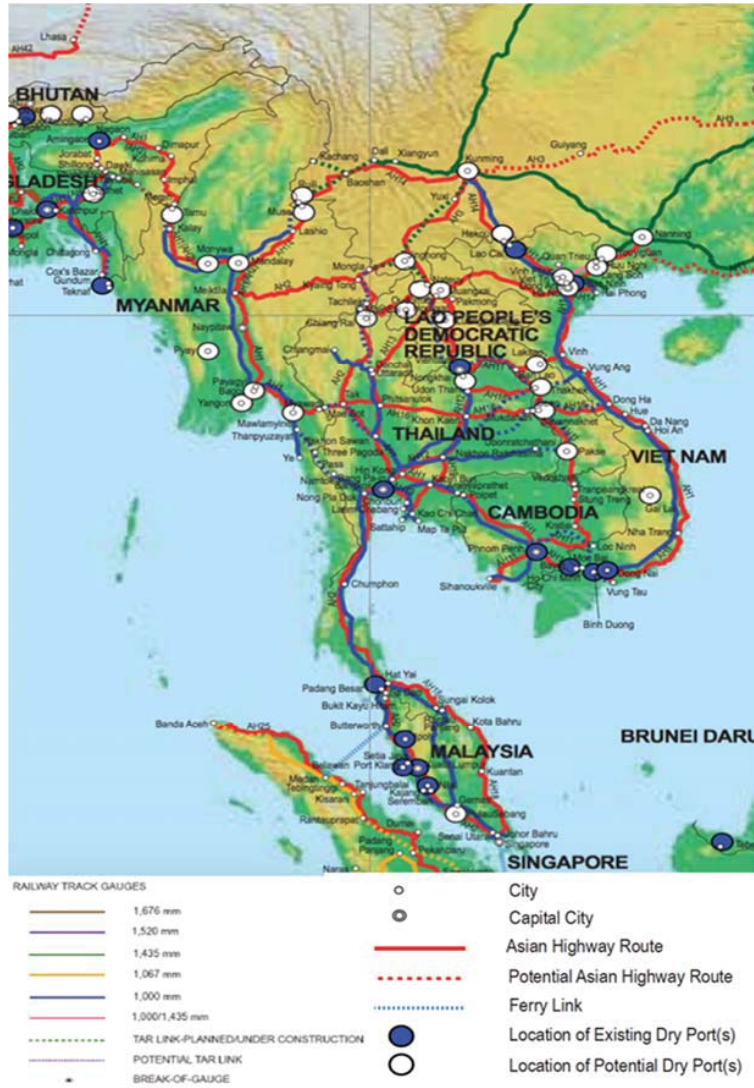


Fig. 6 Integrated Map of AH and TAR [10]



Fig. 7 Bangladesh-China-India-Myanmar Economic Corridor [11]

#### IV. FUTURE DEVELOPMENT PLANS

To handle with the growth of seaborne cargo traffic and to lessen logistics cost in maritime trade by providing accessibility for bigger vessels to be called at Yangon and Thilawa ports, MPA is now making the increased effort to improve Yangon River access channel based upon the existing natural conditions. In accordance with the economic reforms, firstly the government planned to develop Yangon inner harbor area aiming at the provision of sufficient infrastructure to handle the larger volume of cargo in various types in the near future.



Fig. 8 Location map for future port development at Yangon inner harbor [4]

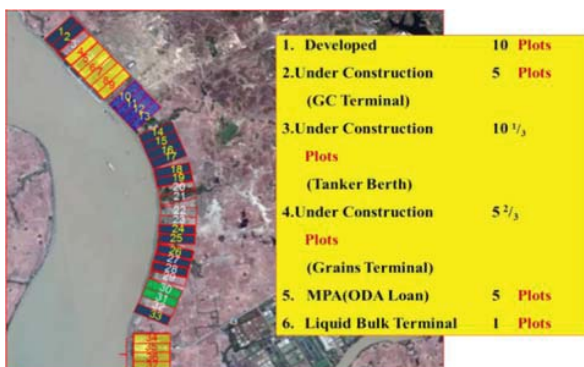


Fig. 9 Land plots allocation for development of ports at Thilawa area [4]

According to the recent Yangon port extension plan, Yangon port will have some more berths as shown in Fig. 8. Fig. 9 illustrates total number of plots, developed plots and plots under constructions in Thilawa port area. Establishing special economic zones (SEZs) is one of those projects and intending to develop at three locations: Thilawa, KyaukPyu and Dawei.

Outside the ports, the highways, inland waterways and rail networks need to be able to cater for increased cargo volumes [1]. For dry port projects, there are seven sites around the country are investigated. As mentioned in [9], border trade with China is significantly increased in recent years. Therefore, Mandalay City is selected to develop a dry port and as a

Secondly, Thilawa port area has been earmarked to carry out the port expansion for the enhancement of higher cargo throughput. Hence, a projected port development scheme together with special economic zone in Thilawa area has been implementing by foreign and local investors in terms of Built-Operate-Transfer (BOT) and Joint venture (JV) basis [8].

Since all existing ports of Myanmar are river ports and not deep enough for larger conventional and container vessels, the government took the initiative in developing deep sea commercial ports at the suitable sites along the coast of Myanmar.

logistics hub of upper Myanmar [10]. It is situated on the Asian Highway (AH1 and AH14) and also on the future Trans-Asian Railway network (TAR-S1 and TAR-S2). Additionally, Mandalay City is located in the middle of the country and also lies on bank of the Ayeyarwaddy, the longest river of Myanmar [2]. To reduce the transportation cost for cargoes, it is an essential way to/from the lower part of Myanmar (Yangon) using inland waterway as a neutrally good access along the Ayeyarwaddy River [2].

To attract more foreign businesses by giving increasing capacity and lowering costs, a number of expansion projects are planned and some are already underway. In addition to the development of infrastructures for seaborne trade, in accordance with the national maritime transport development plan, the priorities are also given to the development of inland water transport (IWT). Improvement of IWT system is the critical importance to adopting multimodal transport system and providing reliable and efficient maritime related logistics services. Furthermore, there are some projects to be undertaken in the long term for the sustainable development of inland water transport.

#### V. SUMMARY

The useful data and up-to-date information collected from authorized organizations and relevant literatures are reviewed and summarized in this article. The maritime transport and logistics in Myanmar have been highlighted to get better

understanding on current situation. In addition, future logistics development plans with neighboring and Southeast Asian countries are briefly described. For developing country, like Myanmar, to address missing links and obstacles are also vital key for developing its economy and international trade.

As Myanmar aims to become Southeast Asian maritime hub, the substantial improvements in logistics related transport and trade has being initiating. The international trade including both maritime trade and border trade of Myanmar has been growing steadily.

Deep sea ports together with Special Economic Zones will provide the maritime industry with an opportunity of increased cargo volume in international trade. Moreover, job opportunities for local people would be generating and living standard also would be upgrading from those projects. Road and rail network of economic corridors will also provide enhancement of border trade with neighboring countries. For all-round development of the nation, in terms of technical know-how and investments, potential investors from all over the world were cordially welcomed to cooperate, coordinate and collaborate [4].

#### ACKNOWLEDGMENT

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#### REFERENCES

- [1] UNCTAD (2014), Review of Maritime Transport 2014. United Nations publication. Sales No. E.14.II.D.5. New York and Geneva. Available at [http://unctad.org/en/PublicationsLibrary/rmt2014\\_en.pdf](http://unctad.org/en/PublicationsLibrary/rmt2014_en.pdf).
- [2] M. N. Aye, “Prefeasibility study of establishing a dry port in Mandalay region, the Republic of Union of Myanmar”, UNESCAP’s editing, to be published. <https://www.slideshare.net/myonyeinaye/dry-port-research-in-myanmar-01>.
- [3] Myanmar sustainable development plan (2018-2030), the Government of the Republic of the Union of Myanmar, Ministry of Planning and Finance, August 2018, unpublished.
- [4] M. Than, “Port Development Scenario of Myanmar”, Myanmar Transport and Logistics Summit, Yangon, Myanmar, May 2013, unpublished. <https://vdocuments.mx/documents/myanmar-port.html>.
- [5] M. N. Aye, “Port Development Sector in Myanmar”, 15<sup>th</sup> Asean Ports and Shipping Conference, Yangon, July 2018, submitted for publication.
- [6] UNCTAD (2015), Review of Maritime Transport 2015. United Nations publication. Sales No. E.15.II.D.6. New York and Geneva. Available at [http://unctad.org/en/PublicationsLibrary/rmt2015\\_en.pdf](http://unctad.org/en/PublicationsLibrary/rmt2015_en.pdf).
- [7] Web: <https://asia.nikkei.com/Politics-Economy/Economy/Growing-trade-pushes-Myanmar-to-expand-Thilawa-port>.
- [8] Myanmar’s National transport development master plan, Ministry of Transport, September 2014, Japan International Cooperation Agency, Oriental Consultants Co., Ltd. International Development Center of Japan, ALMEC Corporation.
- [9] ASEAN Logistics Survey, Volume 5, Myanmar, March 2012, JIFFA (Japan International Freight Forwarders Association Inc.).
- [10] Capt. A. K. Myint, Chairman MIFFA, “Establishing Legal and Institutional Basis for Efficient Dry Ports Development in South East Asia”, 2018. <http://www.captaung.com/>.
- [11] Web: <http://www.asiabriefing.com/news/2013/10/bangladesh-china-india-myanmar-economic-corridor-builds-steam/>.