



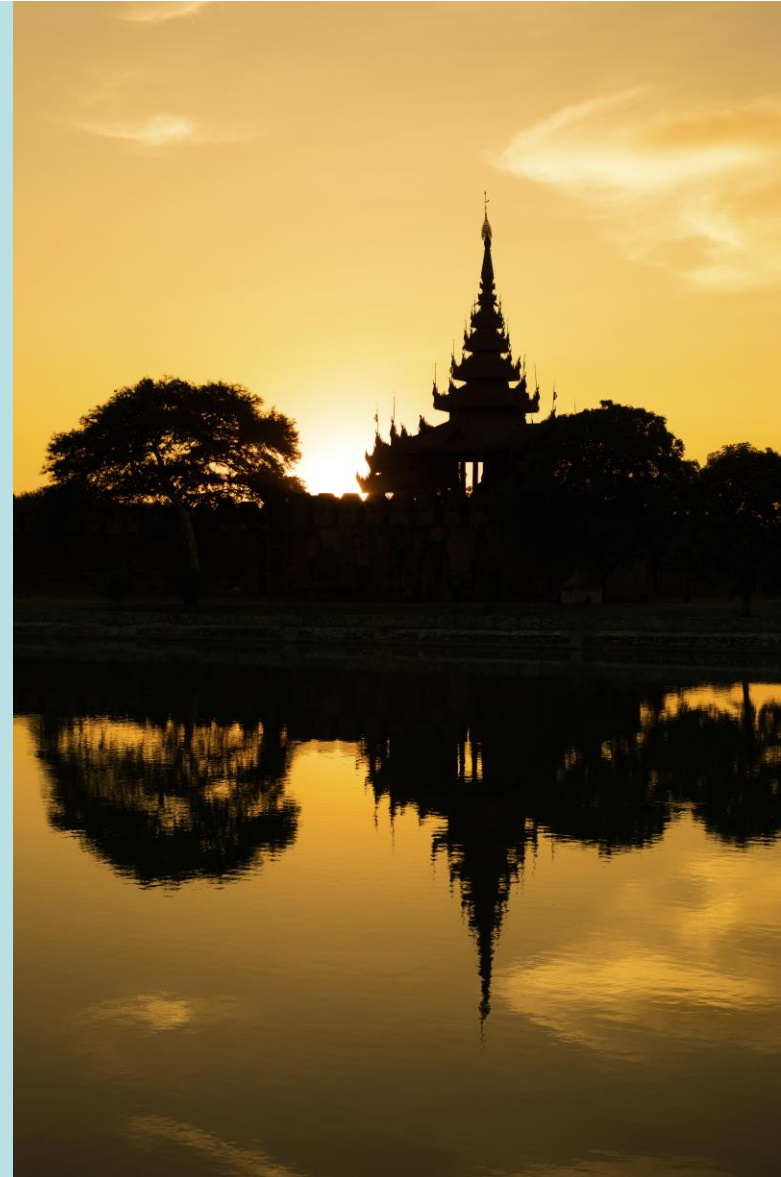
MYANMAR

Maritime Quicksan



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- The study was issued by Dutch Maritime Network and the Dutch Ministry of Infrastructure and the Environment. It is part of the Maritime Hotspots project, a program developed by the Dutch Topsector Water.
- The aim of this study is to present the current state of play in the maritime sector of Myanmar, with a specific focus on:
 - Ports and terminals
 - Inland shipping
 - Shipping
 - Shipbuilding
 - Offshore
 - Fisheries
 - Maritime education
 - Financial climate
- This study was conducted by Rotterdam based maritime consultancy Marstrat BV, in co-operation with C.P. Than Associates from Yangon, Myanmar. Project leaders are Martin Bloem MSc (Marstrat BV) and Dr. Charlie Than (C. Than and Associates Marine Design Firm Co. Ltd).
- Study period: November 2015 – February 2016.
- Study methods include database research, documents from international authorities, reports, interviews with stakeholders in Myanmar and The Netherlands, field visits and insights from business practice by the researchers.
- As much as possible, information comes from original sources in Myanmar. This information was obtained by a team of researchers under the leadership of Dr. Than, who is the former rector of Myanmar Maritime University.
- The results of this study will be presented end of March 2016 during a special session, where ideas will be exchanged on further activities to be developed by Dutch companies and government, and their counterparts from Myanmar.
- Special thanks go to the Dutch and Myanmar Ministries of Transport, and to the diplomatic representation of The Netherlands in Myanmar.
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Rotterdam/Yangon, March 2016

Maritime Myanmar: a bird's-eye view



- Area: 677,000 sqm
- Coastline: 2,228 km
- Continental shelf 228,000 sq km
- EEZ 486,000 sq km
- Population: 60 million people
- Capital: Naypyidaw
- GDP: USD 74 billion (2015 estimate)
- Currency: Kyat
- Main income from agriculture and natural resources
- Major religion: Buddhism
- Diplomatic representation by the Embassy of the Kingdom of The Netherlands in Myanmar.
- President: Thein Sein (2011-16), in March 2016 the Parliament elected Htin Kyaw, from Aung San Suu Kyi's party NLD. Ministers per March 31st, 2016:
 - Foreign Affairs, Electric & Energy, Education, President's Office: Mrs. Aung San Su Kyi
 - Agriculture, Animal Husbandry & Irrigation Ministry: Dr Aung Thu
 - Cultural and Religious Affairs Ministry: Thuya Aung Ko,
 - Natural Resources & Environmental Affairs Ministry: Ohn Win
 - Labour, Immigration & Man power Ministry: Thein Swe
 - Planning and Finance Ministry: Kyaw Win
 - Industry Ministry: Khin Mg Cho
 - Health Ministry: Dr. Myint Htwe
 - Construction Ministry: Win Khine
 - Social affairs Ministry: Dr Win Myat Aye
 - Hotel and Tourism Ministry: Ohn Mg
 - Economic and Trade Ministry: Dr Than Myint
 - Information Ministry: Dr Pe Myint
 - Indigenous People Affairs Ministry: Naing Thet Lwin
 - Defense Ministry: General Sein Win
 - Home affairs Ministry: General Kyaw Swe
 - Border Area Affairs Ministry: General Ye Aung

Figure 1: map of Myanmar

- Current Dutch projects within the broadest maritime definition mostly concentrate on water management. The Dutch focus on an integral water approach, including water safety, irrigation, transport, hydropower, water supply and on capacity building. Players include Delft TU and the large delta engineering firms.
- As one of the interviewees put it, Myanmar is a paradise to engineers: everything has to be built up from square one. Decades of non-investment take their toll. Sunny side is there is an opportunity to do it right in one time, according to latest technical insights ('leapfrogging').
- Two relevant projects may be mentioned:
 - Bago-Sittaung Integrated Water System Analysis: from single purpose to multi-purpose water management.
 - Pan Hlaing Sluices Project: preparation of education sheets: skills and knowledge gained in the project will be used in university curriculum.
- Also the Dutch MER-Commission plays an important role with Environmental and Social Impact Assessments. These assessments are mandatory for many financing sources: Worldbank, ADB, private banks and AIIB. In this way it acts as an independent enabler for business.
- In the broader field, Artsen zonder Grenzen (MSF) has been present in Myanmar since 1992, as the first international NGO in the country. In 2016, MSF is a significant and large-scale actor throughout the country (target population is 1.8 million), largest provider of HIV/aids care in Myanmar, currently treating 37,000 HIV patients nationwide, as well as 3,000 people for tuberculosis.
- Arcadis and other Dutch water engineers deploy activities since 2013, after the MoU was signed by Minister Schultz.
- In December 2014 the IWRM (Integrated Water Resources Management) strategic study was presented. Seven pilot projects administered by RVO are either done or underway.
- Main player in the private field is Royal Dutch Shell. Shell is active in exploration activities in offshore gas, which activities are boosted after the take over of British Gas.
- Other private interests in different stages of involvement are Damen Shipyards, Peterson, HBH Europe. Arcadis, Witteveen+Bos, Grontmij, Royal HaskoningDHV, Boskalis and Van Oord.



1. Ports and Terminals



- The 2,228 km coast line can be divided in three sections:
 - North-West: Rakhine Coast (713 km)
 - Yangon area: Delta Coast (437 km)
 - South: Thanintharyi Coast (1078 km).
- The coastal ports in these zones are mostly river ports, which are not suitable for larger seagoing vessels. In line with the economic development policy of the country, central government is ambitiously planning to develop deep sea commercial ports.
- Currently the largest existing port complex can be found in Yangon. The ports of Yangon can serve vessels up to 15,000 – 20,000 deadweight, with works underway to increase up to 35,000 deadweight vessel capacity.
- Yangon port is divided into two ports. The largest is the Myanmar International Terminal Thilawa, used mostly for RORO ships for transport of cars. This port is located 16 km from Yangon downtown and 16km from Yangon river bay and next to the Thilawa Special Economic Zone developed by a Japanese Joint-venture company.
- There are two deep sea port projects being developed: Kyaukpyu Deep Sea Port at Rakhine State (West Coast), and Dawei Deep Sea Port at Tanintharyi Region on the South Coast. MPA is creating Special Economic Zones to that effect. The Dawei SEZ is being developed into a deep sea port by an Italian-Thai combination (USD 8.6 bln investment).
- There have been reports that ports run by the Myanmar Port Authority (MPA) will be privatised. The country's largest port, Thilawa port is operated by a Hongkong firm. Ahlone Port is run by Asia World. In March 2012, Japanese firm MOL, began a twice-weekly container service between the Port of Yangon and Singapore.
- From Kyaupyu port there is a crude oil pipe line of 781 km and a natural gas pipeline of 870 km to China, 2.0 bln USD investment, supported by CNPC. 2009-2012. Construction of a workboat wharf completed in May 2011.

- Eight coastal ports, also known as 'out-ports', can be distinguished
- They are regionally grouped as:
 - Sittwe, Kyaukphyu and Thandwe ports located in Rakhine State.
 - Patheingyi port in the Ayeyarwady Region
 - Mawlamyine Port in the Mon State.
 - Dawei, Myeik and Kawthoung Ports in the Tanintharyi Region.
- The ports of Sittwe, Patheingyi, Mawlamyine, and Myeik serve as international exporting ports.
- Kyaukphyu, Thandwe, and Dawei ports mainly stand for domestic coastal traffic. Particularly, Kawthoung Ports has been used for domestic coastal traffic as well as export cargoes destined to Thailand
- All these ports are located along the coast of Myanmar specifically on the Rakhine Coast, Delta Coast, and Tanintharyi Coast, as shown in figure 2.

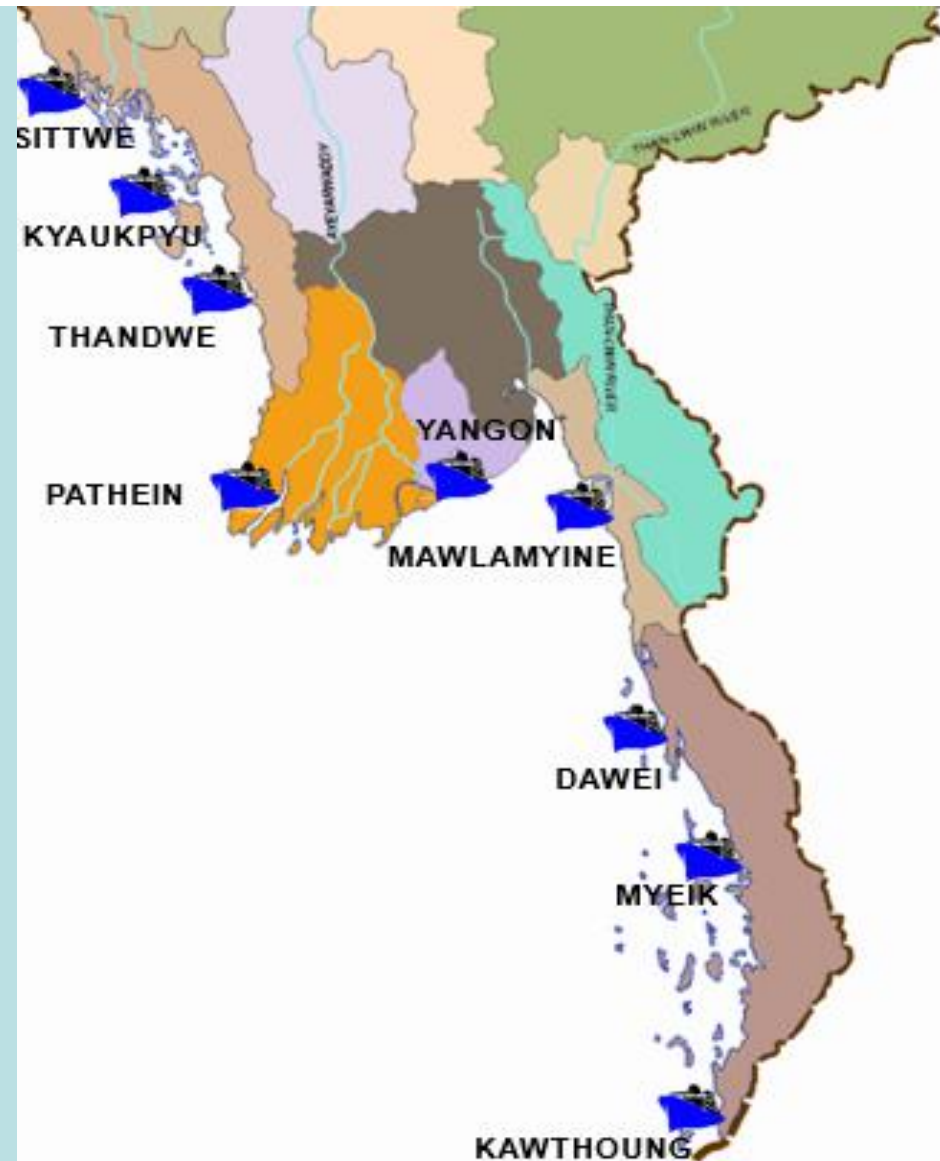


Figure 2: Location of Ports in Myanmar

1.3 Ports and terminals: Yangon ports

- As an international port, Yangon Port handles most of the imports and exports seaborne trade of the country.
- In the Yangon port area, three inland container depots (ICDs) can be found, and 18 international wharves operated under:
 - Bo AungKyaw Street Wharf (BSW)
 - Htedan Port Terminal (HPT)
 - Sule Pagoda Wharf (SPW)
 - Myanmar Industrial Port (MIP)
 - Asia World Port Terminal (AWPT)
 - Hteedan Oil Berth (HOB)
- Further, there are six international terminals in the Thilawa port area, which is about 16 km downstream of Yangon Port. These are managed by the Myanmar International Terminal Thilawa (MITT) and Myanmar Integrated Port Limited (MIPL). AWPT, MIP, MITT and MIPL are operating under the foreign port management companies by way of a BOT investment scheme.
- In light of natural condition and meanderings of Yangon River, the ports have limited accessibility:
 - Yangon Port: accessible to vessels of 167m LOA, 9m draft, 15,000 DWT.
 - Thilawa Port: accessible to vessels of 200m LOA, 9m draft, 20,000 DWT.

* LOA = Length Over All, the total length of a ship

* DWT = Deadweight, a measurement of a ship's cargo carrying capacity

- Yangon Port is situated on the Yangon river, about 32 km inland from the Elephant Point on the Gulf of Martaban. All vessels calling to Yangon Port use the Yangon river estuary's navigation channel as described in figure 3. For vessels over 200 GRT (Gross Register Tonnage) pilotage is compulsory.
- Navigation from Elephant Point to the Yangon harbor is generally possible only at high tide. Two shallow areas known as Outer Bar and Inner Bar have to be crossed near high tide to ensure sufficient depths.
- The channel through Inner Bar is in a stable condition, but regular maintenance dredging has to be done. Particularly during the low flow season between December and May these works are needed. Undredged, the Inner Bar would restrict the passage of larger ships to the ports.
- The access channel at Outer Bar has been changing in cyclic order and the required depth is available without intensive dredging.
- More than thirty years ago, Sir Alexander Gibb and Partners studied this channel to improve it. They mentioned that the Yangon Sea Access Channel could be improved either by construction of training structures or by dredging work. So far however, the Inner Bar has been maintained by dredging only.
- Apart from seaport construction and maintenance, there are many challenges in accessibility of inland ports. Training, deepening and maintaining the rivers of Myanmar is a major issue, not only at the major rivers Chindwin and Ayeyarwadi, but in smaller river areas as well.

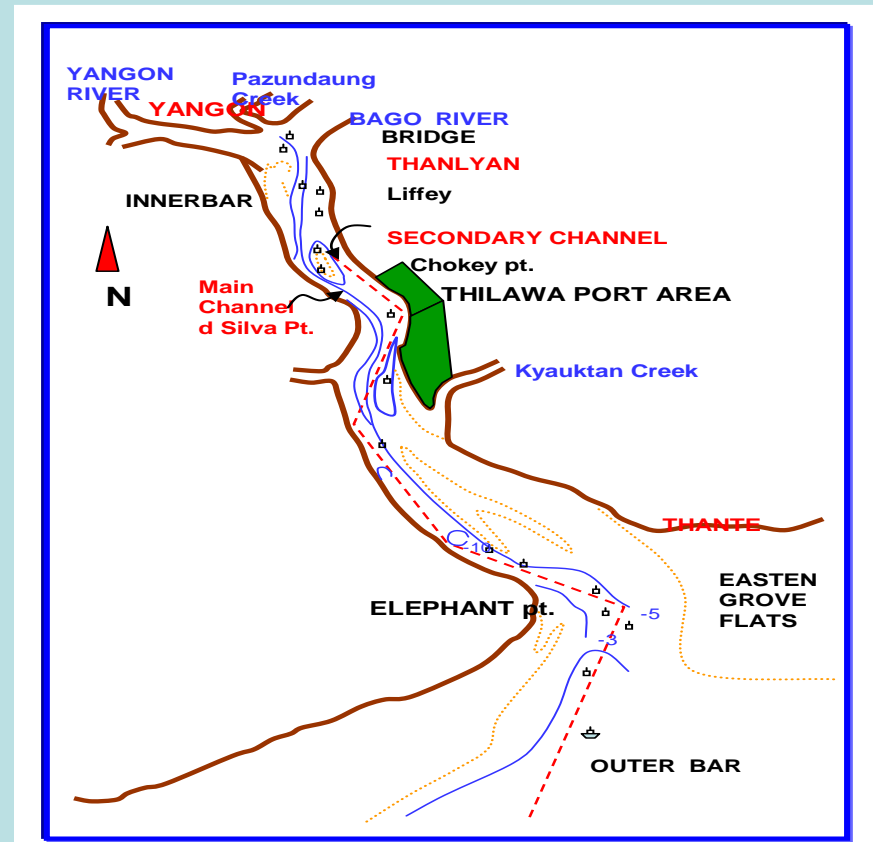


Figure 3: Yangon river estuary

- According to the Statistics of MPA, as described in figure 4, the volume of general cargo and containers handled in Yangon port has increased year by year.
- Due to the changes in Government's political system and economic reforms, the cargo volume doubled in 2012 compared to the volume ten years earlier.
- The foremost export commodities of Myanmar in sea trade include timber, bean & pulses (dried beans), rice and rice products, yellow maize, and fishery products, whereas the import commodities mainly include construction materials, machinery and equipments, fertilizer, crude oil, palm oil, wheat grain, and cement.
- The largest proportion of cargo volume is exported to Thailand followed by Hong Kong, PRC, India, Singapore, Malaysia, Japan and Rep. of Korea. On the other hand, the highest amount of imported cargo usually flows from PRC followed by Singapore, Thailand, Rep. of Korea, Indonesia, Japan, India and Malaysia.

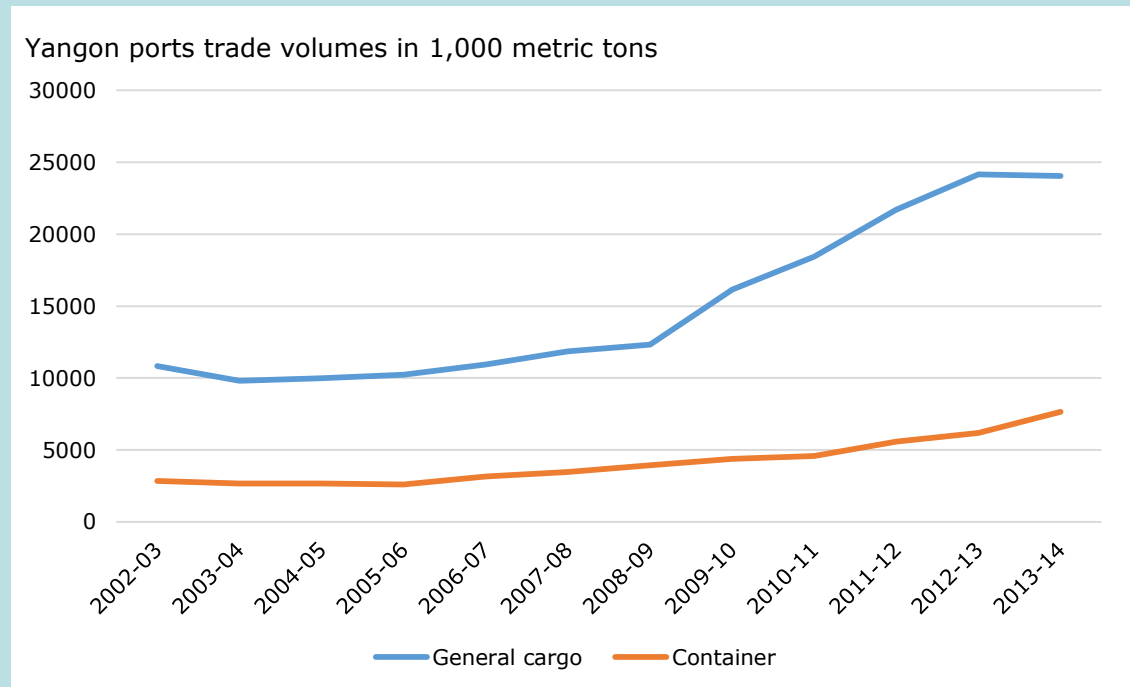


Figure 4: Yangon port trade volumes

- As presented in table 1, there is a significant increase in number of vessels calling to the port of Yangon over the last decade. It rose from 971 in 2003-04 to 2,334 in the fiscal year 2013-2014.
- MPA, MITT, AWPT, MIPL, MIP, HOB, HPT, and BSW dedicate their port operations to commercial activity of the country as key port and terminal operators.
- Myanma Oil & Gas Enterprise (MOGE) and Myanma Petrochemical Enterprise (MPE) use their own jetties for the movement of their own cargo within the Yangon Port area.

No.	F.Year	MPA	MITT	AWPT	MIPL	MIP	MOGE	MPE	HOB	HPT	BSW	TOTAL
1`	2003-2004	331	115	172	31	43	77	186	16	-	-	971
2	2004-2005	378	119	162	27	64	96	210	31	-	-	1,087
3	2005-2006	366	113	192	25	98	96	173	39	-	-	1,102
4	2006-2007	369	127	233	29	91	84	168	52	-	-	1,153
5	2007-2008	441	163	267	29	68	124	173	28	-	-	1,293
6	2008-2009	406	172	324	32	84	120	150	1	-	-	1,289
7	2009-2010	654	214	380	43	93	108	106	-	-	-	1,598
8	2010-2011	656	267	373	48	139	73	88	31	-	100	1,775
9	2011-2012	639	245	354	38	137	74	112	89	11	137	1,836
10	2012-2013	649	239	290	97	180	233	146	76	151	134	2,196
10	2013-2014	600	309	280	107	216	207	156	90	199	170	2,334

Table 1: Number of vessels calling to Yangon Port

1.7 Ports and terminals: developments

- Government has planned to develop the Yangon inner harbor area, aiming at sufficient infrastructure to handle the larger volume of cargo in the near future. The implementation includes:
 - Expanding the back-up area of Botataung foreshore, by constructing revetment and reclamation area. There is a project to establish recreational and commercial buildings at the premises.
 - Upgrading the Nanthidar and Pansodan-Dala passenger jetties to a modern passenger terminal, whilst constructing modern commercial buildings in the back-up area.
 - Upgrading and renovating the Sule Wharves as a multi-purpose terminal for international general and container cargo vessels.
 - Upgrading the local jetties to international inland port terminals, and
 - Constructing modern commercial buildings in the Lanmadaw foreshore area between Ywarthit creek and Sintoodan Jetty.
- Secondly, Thilawa port area has been earmarked for the enhancement of higher cargo throughput. Hence, a projected port development scheme together with special economic zone in Thilawa area has been implemented by foreign and local investors on BOT and JV basis.
- To cope with the growth of seaborne cargo traffic and to lessen logistics cost in maritime trade, larger vessels will have to be able to access the Yangon and Thilawa ports. MPA is now making an increased effort to improve the Yangon river access channel based on the existing natural conditions.
- Since all existing ports of Myanmar are river ports and not deep enough for larger conventional and container vessels, the government took the initiative to develop deep sea commercial ports along the coast of Myanmar.
- The three deep sea port projects to be implemented in Myanmar are:
 - Kyaukphyu Deep Sea Port in the Rakhine state on the West coast, which borders Bangladesh to the North and the Bay of Bengal to the West. This project was awarded to Chinese CITIC Group in last January. CITIC has won two contracts related to a special economic zone in Kyaukphyu including building a deep sea port on the Bay of Bengal. CITIC's consortia will lead projects to build the port as well as an industrial area at the Special Economic Zone.
 - Kalagauk Deep Sea Port between the Mawlamyine and the Ye region on the South coast. The Kalagauk Deep sea port project is still under investigation for technical and financial feasibility.
 - Dawei Special Economic Zone together with Deep Sea Port in the Tanintharyi region on the South coast. Thailand and Myanmar signed MOUs to develop the Dawei SEZ in 2008 and 2012. As part of the MoU, Myanmar granted Italian-Thai Development PCL (ITD) a 75-year concession in 2008 to construct the project, and attract investment. The project was suspended due to the lack of financing. ITD lost the 75-year concession in 2013, with the governments of Thailand and Myanmar taking a 50% stake in the project each. On 30 January 2015, Japan agreed to participate in the project, holding equal partnership to Thailand and Burma in the Dawei SEZ Development Co, and intend to provide technical and financial support for the project. The Dawei Special Economic Zone Development will include a deep-sea port with a capacity to hold 250 million tons of cargo, surrounded by an economic zone covering some 200 square kilometers.

Kyaukphyu Deep Sea Port	Kalagauk Deep Sea Port	Dawei Deep Sea Port
<u>Location</u> Made Island, 11.2 km S/E of Kyaukpyu	<u>Location</u> Between Mawlamyine and Ye in Mon State	<u>Location</u> Lies at Nabule area, North-West of Dawei City
<u>Approach channel</u> LAD 24 m, Tidal Range 2~2.7 m	<u>Approach channel</u> LAD 15 m, Tidal Range 3~5 m	<u>Approach channel</u> LAD 15 m, Tide Range 5 m
<u>Harbor area</u> LAD 20 m, Sea Room 1000m~1600 m	<u>Harbor area</u> LAD 18 m, Sea Room 4.8 km	<u>Harbor area</u> LAD 15 m, Sea Room 3.2 km
<u>Prosperity</u> <ul style="list-style-type: none"> • Most appropriate approach to tie western corridor • Saving sailing distance about 5000 km comparing with existing sea route through Malacca Strait to China East Coast • Main outlet of ocean route for land locked regions' trade • Opportunity for transporting container, general cargo, crude oil, and gas • Shortest trade route from India to China 	<u>Prosperity</u> <ul style="list-style-type: none"> • Development of a deep sea port support with industrial estate at Kalagauk area, between Mawlamyine and Ye coast line in Mon State • The route of the West-East Economic Corridor (WEC) will act as a land bridge linking Indian Ocean and the Pacific, cutting the distance of conventional sea route passing the Malacca Strait by almost two third • The project wil benefit the countries along the corridor such as Vietnam, Laos, Cambodia, Thailand, and China as well • This deep sea port will serve as a gateway of WEC on the West side 	<u>Prosperity</u> <ul style="list-style-type: none"> • Dawei area will become a hub of GMS, Southern and South East Asian countries • The project will provide a competitive advantage as a communication link with direct access from GMS countries and China to the Andaman Sea and Indian Ocean for the transportation of goods. • The project will be multisectoral: industry, tourism, fisheries, mining, and energy • It will cover a deep sea port, ship yard, industrial estate, petro-chemical complex, oil refinery plant, steel mill, fertilizer plant, power plant, road and rail link to Thailand, oil and gas pipeline.

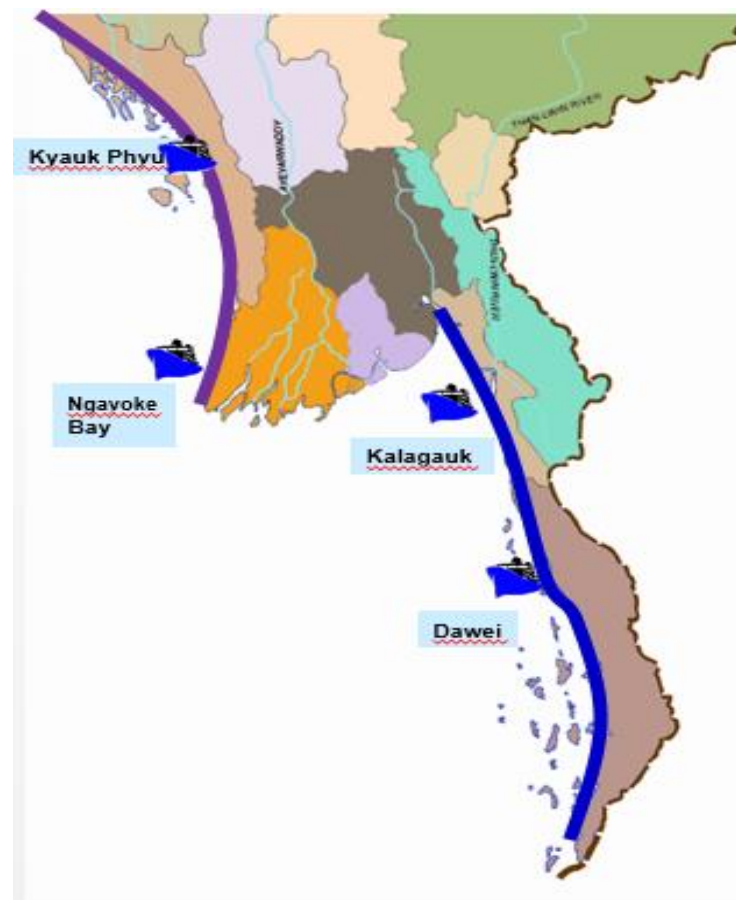


Figure 5: deep sea port projects

- Myanmar Port Authority (MPA) invites potential investors to participate in deep sea port project development. The investments are necessary in order to enhance sustainable economic development of the country, upgrading living standards and generating job opportunities for the local people. As a result, recently a feasibility study has been launched into a new deep sea port named Westport. It is located at the Ngayoke bay in Ayeyarwaddy region.
- CNPC – South East Asia Pipeline Company is implementing a tanker port on Made Island for laying the Myanmar-China crude pipe line. In the same area a workboat wharf for vessels up to 5,000 DWT has been recently constructed. It is especially geared towards the construction of revetment, dredging, removing the under-water rock, earthwork filling and construction of offices and apartments.
- Myanmar and ASEAN region will have an enormous economic opportunity of building East-West corridor through Dawei-Bangkok, and Kyaukphyu-China Corridor.
- Foreign investors, in addition to Myanmar citizens, are allowed to participate in port and terminal operations within Myanmar in the form of joint venture with the State or citizen under the Myanmar Foreign Investment Law-1988, 2012; Myanmar Citizens Investment Law, 1988; Myanmar Special Economic Zone Law, 2012; and Myanmar Companies Act, 1914.
- The 100% foreign direct investment enables those investors to receive a number of benefits:
 - ability to engage in services or industrial companies
 - ability to obtain import/export registration and license
 - ability to get tax and foreign exchange benefits
 - ability to obtain a long-term lease on a commercial property.

- Vessels calling to the Yangon Port and Thilawa Port are generally dependent on flood tides. Crossing both the Inner Bar and Outer Bar is only possible near high tide to assure sufficient water depths. Daily maintenance dredging is carried out to reach sufficient water depth at Inner bar and relocation of navigation buoys has occasionally been undertaken at the Outer Bar.
- In view of natural condition and meanderings of Yangon River, Yangon Port can be accessible to vessel of 167m LOA (length over all), 9m draft, 15,000 DWT (deadweight) and vessel of 200m LOA length over all), 9m draft, 20,000 DWT at Thilawa Port. In order to cope with the growth of the seaborne cargo traffic and to lessen logistics cost in maritime trade, bigger vessels are needed to call at Yangon Port. MPA is taking initiatives to improve the Yangon River access channel.
- Sedimentation is a continuous problem at some locations of the Yangon Port's navigational channel. Regular maintenance dredging is required by using trailing suction hopper dredgers, especially designed for the localized siltation. Simultaneously, erosion at some portion of the meandered river banks and siltation at some foreshore areas are challenges. River navigation and bank protection works have to be undertaken to tackle these problems.
- In future the deep sea ports, now under planning, will require the design and construction of breakwaters. Breakwater construction technology will need to be adopted by trained engineers.
- MPA also needs technology regarding design and construction of medium-sized dry docks for its port services vessels, up to the capacity of 2,000 DWT. There is a need for modernization of the port facilities of Yangon Port, inner harbor and upstream terminals.

Opportunities

- Dredging operations in Yangon Port and Deep Sea Ports.
- Yangon rivers development for deep draft vessels also for Dalla side development.
- Harbor tugs, supply vessels, search and rescue vessel & pilot vessel construction.
- Marine supply base in Yangon and Deep Sea Ports.
- Installing a proper energy supply base in all ports.
- Realizing an LNG station for Yangon City.
- Development of port facilities.
- Capacity building for port management.
- Introducing multi modal transport, extensively using inland water transport system possibilities.

Conclusions

- Yangon Port momentarily handles 85% of Myanmar's import and export. If the GDP continues its growth at a pace of 8% annually, Yangon Port cannot handle the national requirements with its existing capacity.
- All deep sea port projects are in planning and negotiating stages, thus waiting for implementation.
- The port management system is still in public hands.
- The development of inland ports along the Ayeyarwaddy is becoming critical.
- Yangon Port development is still at upstream areas instead of downstream. There are conflicts with city development and traffic congestion. It is necessary to dredge continuously in the current precious nature. Also there is a necessity to improve the hydrodynamic complexity of two rivers and one creek confluence.
- In order to achieve sustained economic development of the country, a market-oriented economy has already been launched and appropriate measures for economic reforms and liberalization were also initiated. Government welcome investors in the port sector.



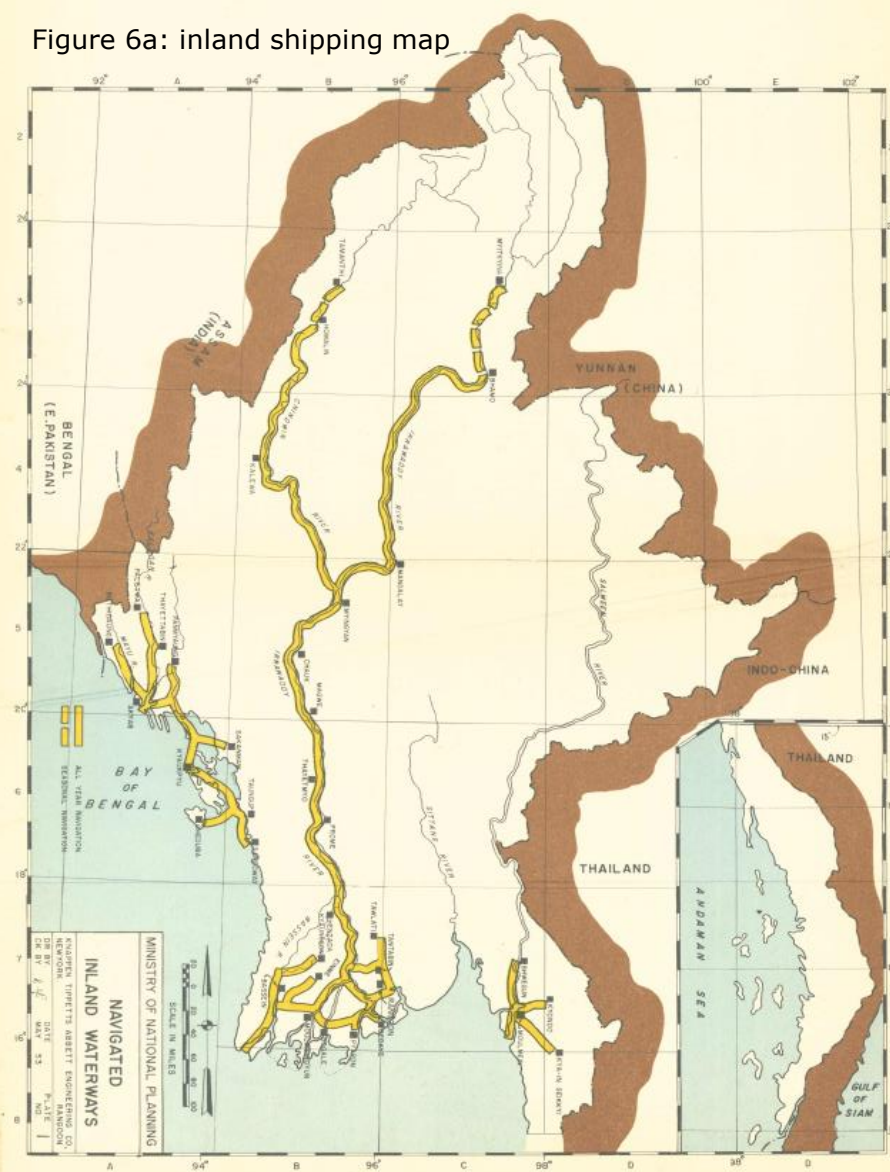
2. Inland Shipping



- Inland shipping mainly takes place at the four major rivers Ayeyarwaddy, Chindwin, Thanlwin and Mon State Rivers and Sittaung.
- Apart from this the minor rivers in Ayeyarwaddy Delta, minor rivers in Rakhine State and minor rivers in Kayah and Mon State are being used for inland waterborne transport.
- The commercially navigable length is 6915 kilometers:

– The Ayeyarwady	1534 km
– The Chindwin	730 km
– The Ayeyarwady delta	2404 km
– The Thanlwin and Mon state rivers	380 km
– The Rakhine state rivers	1602 km
– The Mekong (within Myanmar territory)	265 km
- The inland navigation fleet is in a state of overcapacity. It can be divided in two: the governmental Inland Water Transport (IWT) fleet (100,000t capacity) and privately owned ships (500,000t capacity).
- The IWT fleet consists mainly of barges and mixed cargo and passengers ships.
- The private fleet consists of:
 - on average 1,000 tonnes barges, fully loaded in the wet season and partly loaded in the dry season (600 tonnes) and small barges up to 250 tonnes going up to Katha/Bhamo (1470 units).
 - 694 passenger and cruise vessels of mixed age.
- The private fleet has increased and was partly renewed over the past few years, stimulated by tourism industry.

Figure 6a: inland shipping map



2.2 Inland shipping: regional divisions

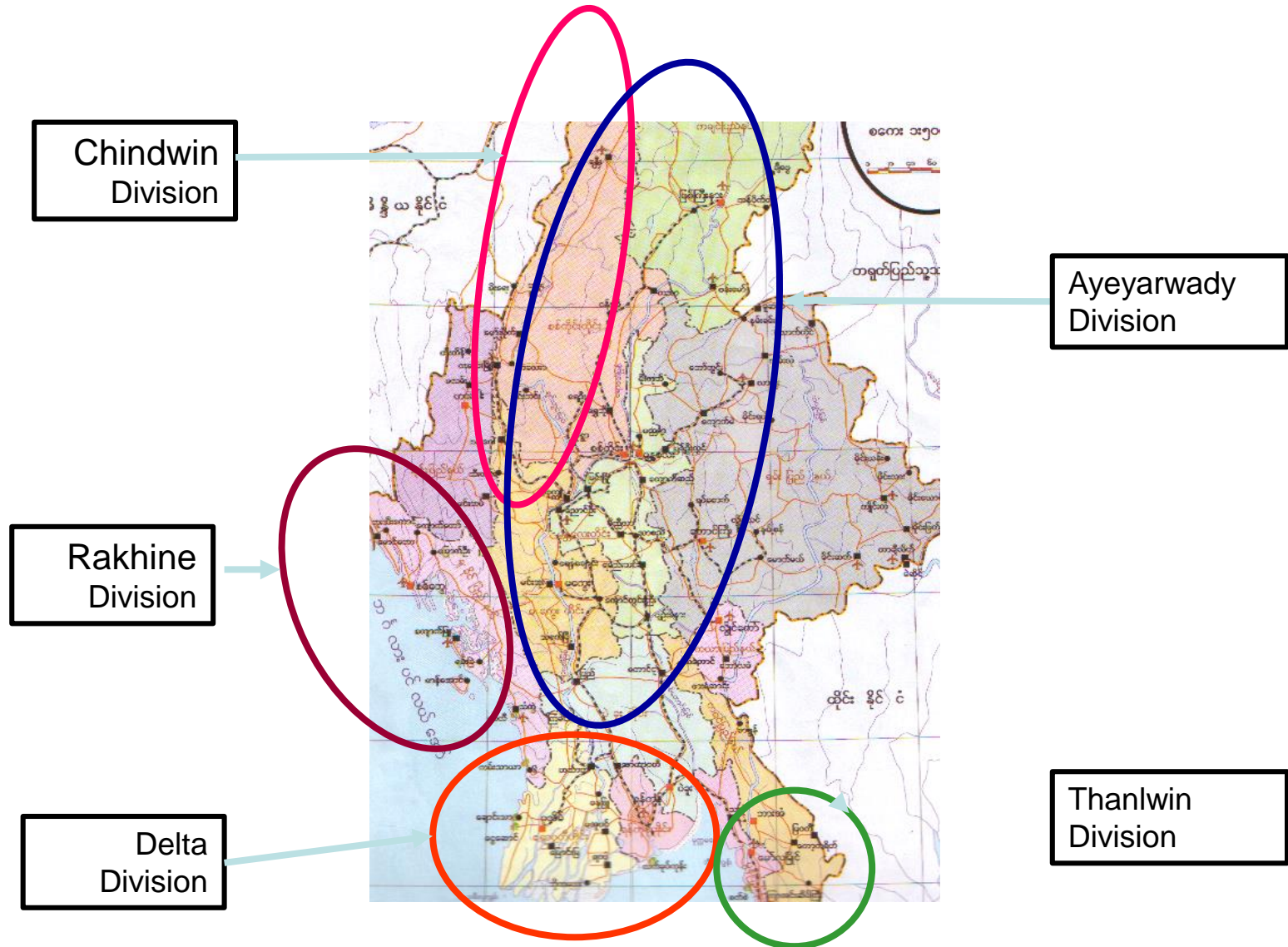


Figure 6b: inland shipping regions

2.3 Inland shipping: regional divisions in detail

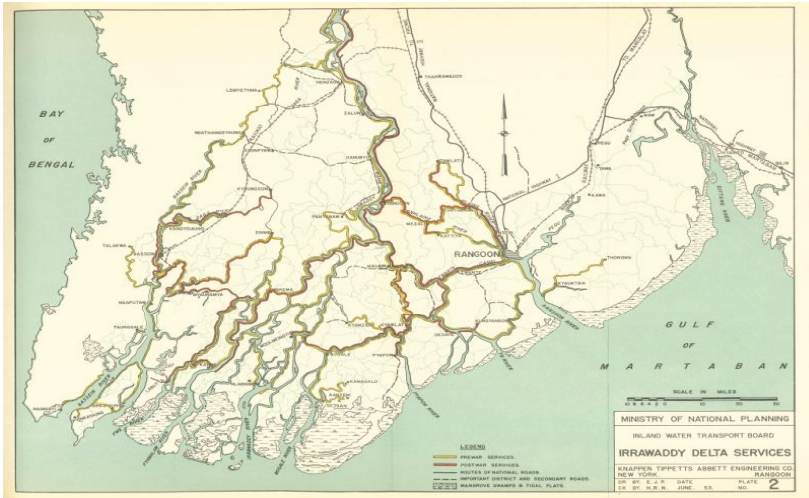


Figure 7: Delta Division

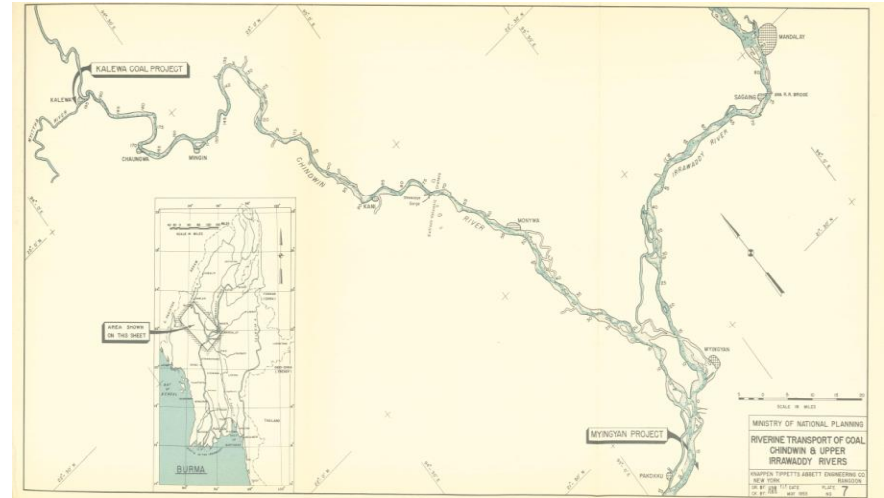


Figure 8: Chindwin and Ayeyarwady Division

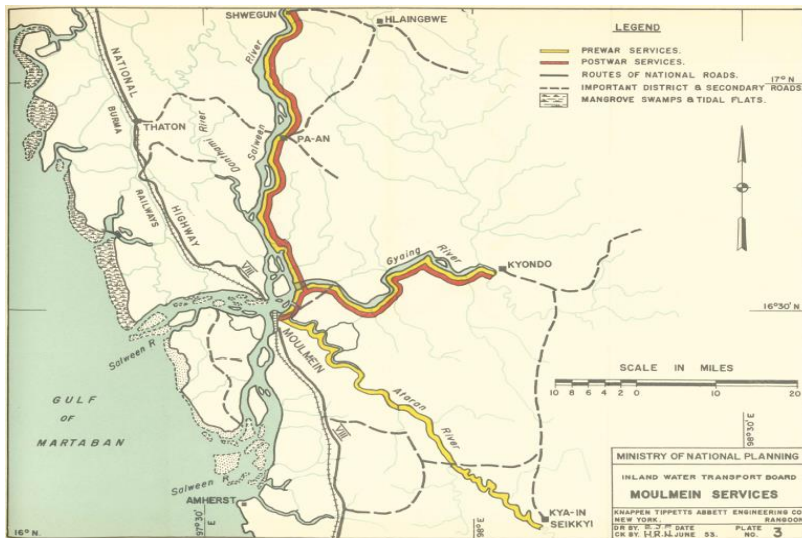


Figure 9: Thanlwin Division



Figure 10: Rakhine Division

Inland Water Transport (IWT) is one of the state owned river transport enterprises under the Ministry of Transport. The main function is to carry out the transportation of passenger and commodity at low cost along the navigable waterways of Ayeyarwady River, Chindwin River, Delta area, Mon, Kayin and Rakhine States. Bulk and special transports are also carried out. The short sea fleet additionally transports export goods such as timber logs and heavy imported equipment from Yangon port to upper Myanmar.

The IWT fleet is made up of 346 units (source MOT/IWT, per 1.1.2016)

Powered Vessels

• Passenger/cargo	118
• Cargo vessel/tug	24
• Tug	17
• Pilot Tug	17
• Fresh water carrier	1
• Miscellaneous	6

Non-Powered Vessels

• Cargo Barge	126
• Oil Barge	7
• Pontoons	30

Age composition:

110 units over 61 years
90 units 41-60 years
102 units 21-40 years
44 units 20 years or younger

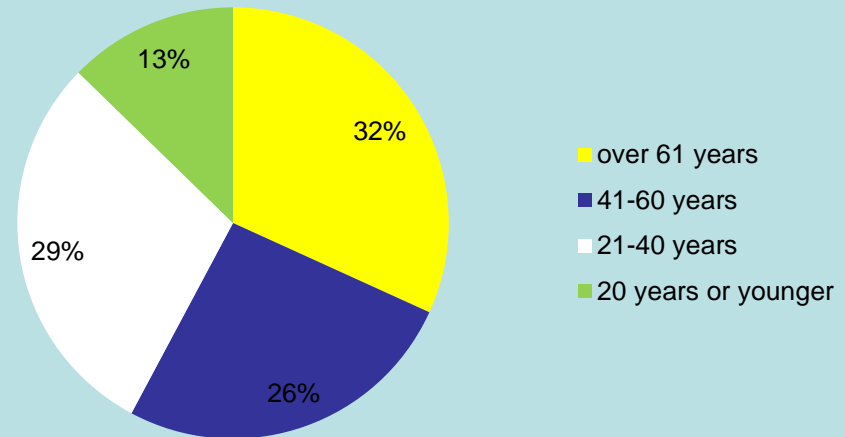


Figure 11: IWT fleet age

2.5 Inland shipping: current operating routes

No.	Sub Division	Routes	Frequency (Round trip)	Remarks
1	Delta	Yangon-Dala	46/day	
2	Delta	Yangon-Khanaungdo	8/day (6.5/day in summer)	
3	Delta	Wahdan-Dala	9/day (7/day in Summer)	
4	Delta	Yangon-Kyonemangae	2/week	
5	Delta	Yangon-Mawkyun	3/week	
6	Delta	Yangon-Laputta (inside)	1/week	
7	Delta	Yangon-Laputta (outside)	3/week	
8	Ayeyarwady	Mandalay- NyaungOo	2/week	
9	Ayeyarwady	Mandalay-Bamaw	3/week	
10	Chindwin	Monywa-Kalaywa	1/week	Only in rain season
11	Thanlwin	Mawlamyine – Kalwy	2/day (1/day in summer)	
12	Thanlwin	Mawlamyine – Natmaw	2/day (1/day in summer)	
13	Rakhine	Sittwe – Buutheetaung	6/week	
14	Rakhine	Sittwe – MyaukOo	1/week	

Table 2: frequencies of inland shipping lines

Fiscal Year	Passenger	Passenger Mile	Ton	Ton Mile
	(in Million)	(in Million)	(in Million)	(in Million)
1999-2000	22.62	453.52	3.65	340.81
2000-2001	23.27	457.23	3.86	344.38
2001-2002	23.94	474.57	4.03	355.11
2002-2003	24.2	487.03	4.17	370.87
2003-2004	24.25	480.77	4.19	427.15
2004-2005	24.71	516.33	4.3	453.35
2005-2006	28.34	588.83	4.26	455.17
2006-2007	26.32	654.78	4.28	519.98
2007-2008	26.88	720.67	4.47	581.84
2008-2009	27.41	783.48	4.65	639.44
2009-2010	27.11	820.22	4.68	687.2
2010-2011	27.56	920.21	4.79	753.69
2011-2012	19.3	531.27	3.35	519.88
2012-2013	15.02	210.1	2.12	332
2013-2014	13.24	146.12	1.9	283.12
2014-2015	12.29	96.65	1.79	282.3

Table 3: performance of IWT 1999-2014

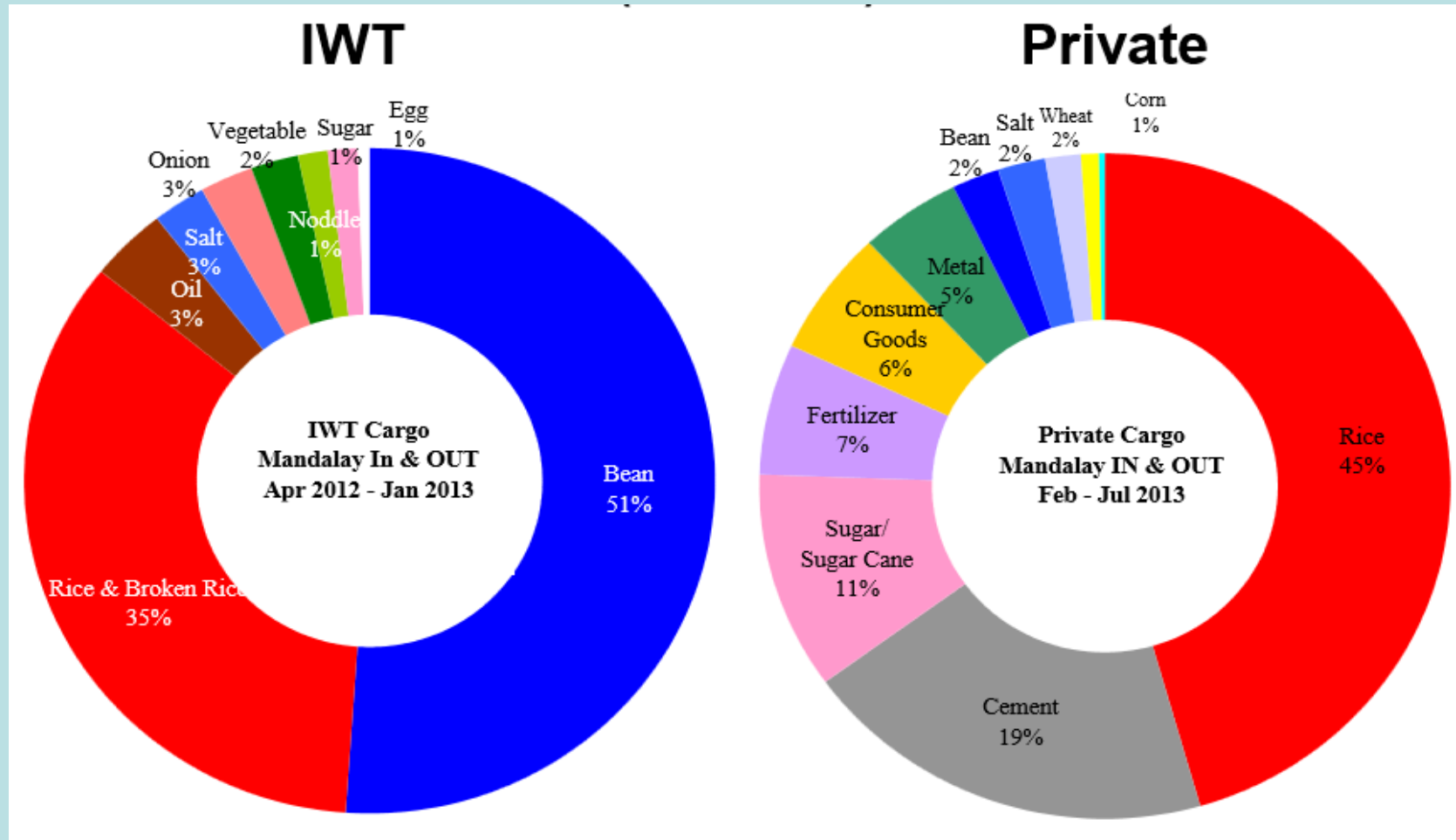


Figure 12: cargo handling volume at Mandalay (sort by cargo type)

Source: IWT

2.8.1 Inland shipping: impressions - cruise and ferry



2.8.2 Inland shipping: impressions - construction container barge

Myanmar Market Scan



2.9 Inland shipping: IWT multimodal pilot project

1.TSW (Thriya Sandra Win)
Containerized Nickel
Takaung >>>>Yangon
20ft-Nickel Container



Takaung→Yangon, Approx. 1,250km

Container : 20ft

Cargo Owner : TSW

Cargo : Nickel
※Feeder transport for Exporting

Container vanning : fork lift

(Travel time for one round)

Rainy : 2weeks

Dry : 3weeks

2. MAPCO、MyanungMya→Yangon、Approx. 270km、Container : 20ft
Cargo owner : MAPCO(Myanmar Agricultural Product Company)
Cargo : Rice、Feeder Transportation for exporting、 Vanning : Fork lift
Travel time for round : No difference in Rainy and dry : 1 week

3. Ever Flow River
Patheingyi→Yangon、Approx. 300km、20ft and 12ft Container

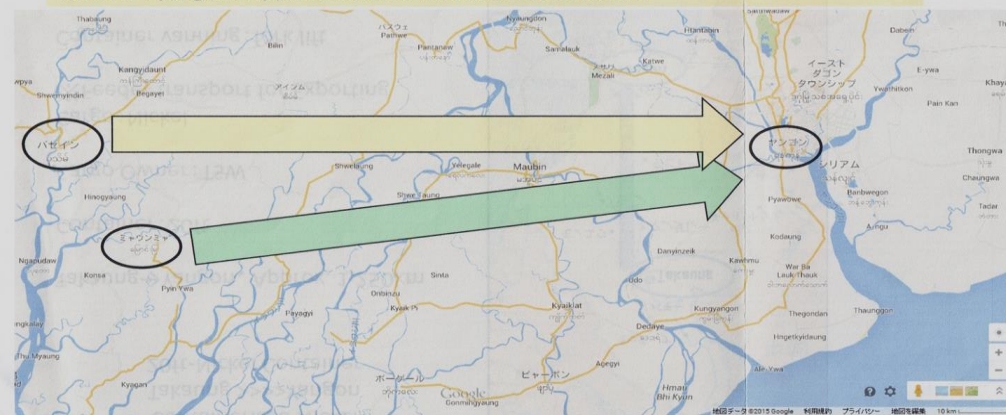


Figure 13 & 14: practical examples of inland based multimodal solutions

2.10 Inland shipping: Kaladan multimodal transport project



Figures 15 and 16: regional seaborne trade, 300 deadweight carrier for multimodal transport project



Target	Projects
Development of water resources and waterways	<ul style="list-style-type: none">• Maintenance of Ayeyarwaddy and Chindwin rivers• Multidimensional development of Ayeyarwaddy river
Development of inland water transport	<ul style="list-style-type: none">• Purchasing new vessels• Upgrading the Dala Dockyard• Fulfilling ferries for Pansoedan-Dala Ferry Line• Establishing and upgrading six domestic ports at Ayeyarwaddy and Chindwin rivers
Installation of navigation aids	<ul style="list-style-type: none">• Installing signals, buoys, GPSs, radios, telecommunication systems, and modern tools

- The development of inland water transport is of critical importance to the national transport system. Adopting multimodal transport systems and providing reliable and efficient maritime related logistics services are targeted. Concrete projects to be implemented by 2016 are presented above.
- Projects funded by the international grants/loans include:
 - Construction of Buoy/Jetty at Bokalay (town) with Japanese grants.
 - Building of barge for carrying containers for container transport in inland water as well as for multimodal transport on specified routes.
 - Kalandan Multimodal Transit Transport Project with India.
 - Turn key responsibility of building required ships, sufficient depth, construction of ports, jetty and buoys, and navigation aids, including management and administration lies with the Inland Water Transport Department.
- Longer term investments include:
 - Replacement of hovercraft and passenger vessels as well as modern cargo handling systems.
 - Introduction of barges over 1,000 ton.
 - Conducting freight transport agency services with warehouse facilities.
 - Establishment of container port, yard, hub in ports of Yangon and Mandalay.
 - Installation of container crane barges to support the multimodal transport operation in the future.
 - Fulfilling the coastal container fleet for the potential flow of goods after completion of Dawei and Kyaukphyu deep seaports.
 - Upgrading existing dockyards.

- In 2011, after major policy reforms, there was a substantial increase in inland ship construction, mostly barges generally around LOA 200ft and tugs. Also the short trip passenger vessel fleet grew substantially in the Delta area and Mandalay division (Mandalay-Bagan). The number of private ship owners increased as well .
- The cargo carrying capacity of the governmental IWT fleet is decreasing, but sharply increases in the private sector. This results at the moment in a five times higher private fleet in the private sector cargo carrying capacity. Also the number of vessels is three times bigger than the national fleet. However, the fleet is sub standard and built with improvised methods. New categories of cargo such as copper, chromide, coal, fuel and construction materials are carried mainly by private ship owners, because of their vessel sizes.
- Some companies reach out to small scale short sea shipping.
- In 2015, the weather destroyed crops so that the rate of production is lower than every other year.
- In late 2016, the inland water transport is expected to grow, as a result of increased agriculture production. Also the construction sector is growing, which will increase waterborne transport of construction materials.
- There are no foreign investments in the local water transport sector, apart for a few investments in cruise shipping. Cruise vessels demand will increase with the rise of tourism.
- The forecasted volumes of inland waterway transport (source JICA) indicate that inland barging will grow in the coming 15 years, keeping track with other modalities, but not conquering a larger part of the modal split.

Navigational Challenges

Irrawaddy River:

- Difficult ship operations in shallow water regions and in the low water season. It is a wide river with a lot of turning, grounding, deterioration of river and rapid changing of the route, making navigation and cargo loading unsafe.

Chindwin River:

- The Chindwin valley has no other transport means except inland waterways and thus relies heavily on river transport. During low season, there are problems such as narrow and shallow water channel, grounding, delaying, damaging in underwater parts of ships. In high season, there is difficulty in ship handling because of rapid currents, collisions with piers or bridges and consequently, sinking of vessels and barges.
- Lack of adequate water way signals and modern equipment for navigating at night. Radar and search light should be employed and steering systems capable of operating against rapid current will also be necessary.

Operational Challenges

Since 2011 there is a remarkable decrease in performance of the official IWT fleet. There are several factors that can explain this, because obviously this is in contrast to the rising cargo volumes and the expanding economy:

- Port facilities for inland waterway are very poor. Cargo loading and discharging are still being manually operated using manpower. Most of pontoons are connected with gangways, no jetties. Inland port facilities for cargo handling need development.
- The development in road transport threatens IWT, causing loss of market share. The performance of IWT is gradually going down over a decade. Road Transport in the Delta area and upper reaches is improved, which resulted in severe competition between modalities instead of a synchronization process.
- Government subsidies to IWT have been stopped since 2012. Thus, IWT has to manage and operate in a self-reliance style. It currently is loss making and facing financial difficulties. The plan to solve this problem is to corporatize IWT. The approval of the Union Government is being awaited.
- The IWT vessels are built according to the rules and regulations, but private vessels are mostly sub standard. Therefore IWT vessels cannot compete and are hardly economically viable. Due to lacking funds from government, fleet maintenance cannot be carried out to requirement. Shell plating thickness of vessels in practice is set at 40% reduction at IWT shipyards, whereas 20% is allowed by the Authority.
- Fleet optimization theory is coming up, but does not really function. Scrapping and privatization is taking place, but on the other hand obsolete vessels are sold to private companies at near scrap price. These old vessels compete again to IWT. There is an overcapacity in the private owned fleet in Chindwin and Ayerwaddy Rivers and IWT has very limited room to play with competitors.

Opportunities

- Inland water operations
- Research on ship design for inland navigation
- Inland and coastal ship building
- Ship repair and maintenance
- Port facilities
- Cargo handling equipment
- Inland Port and shipping management
- Tourist vessels for Middle Ayerwaddy

Conclusions

- Inland water transport has played an important role in the social-economy of Myanmar people.
- Major challenges are being faced by the operators:
 - Navigational
 - Operational
 - Managerial
 - Lacking supply industry, e.g. machineries and outfitting
 - Ship classification standards for inland cruise vessel are necessary.
- The public operator Inland Water Transport Department is facing financial and organizational problems, and is planned to be corporatized. The changes are however too rapid and the organization cannot adapt timely. Inland Water Transport (IWT) is a real public carrier that operates in non commercially viable and remote area operations for public transportation.



3. Shipping



- According to the statistics of Central Statistical Organization (CSO), foreign trade has increased annually over the last decade.
- Total trade value was USD 29,156 million in 2014-2015:
 - Export value USD 12,523 million
 - Import value USD 16,633 million
- There has been an increase of 16.8 % in total trade value of 2014-2015 compared to the previous year. Figure 17 shows the upward trends in exports, imports, and total trade over a period from 2004-2005 to 2014-2015.

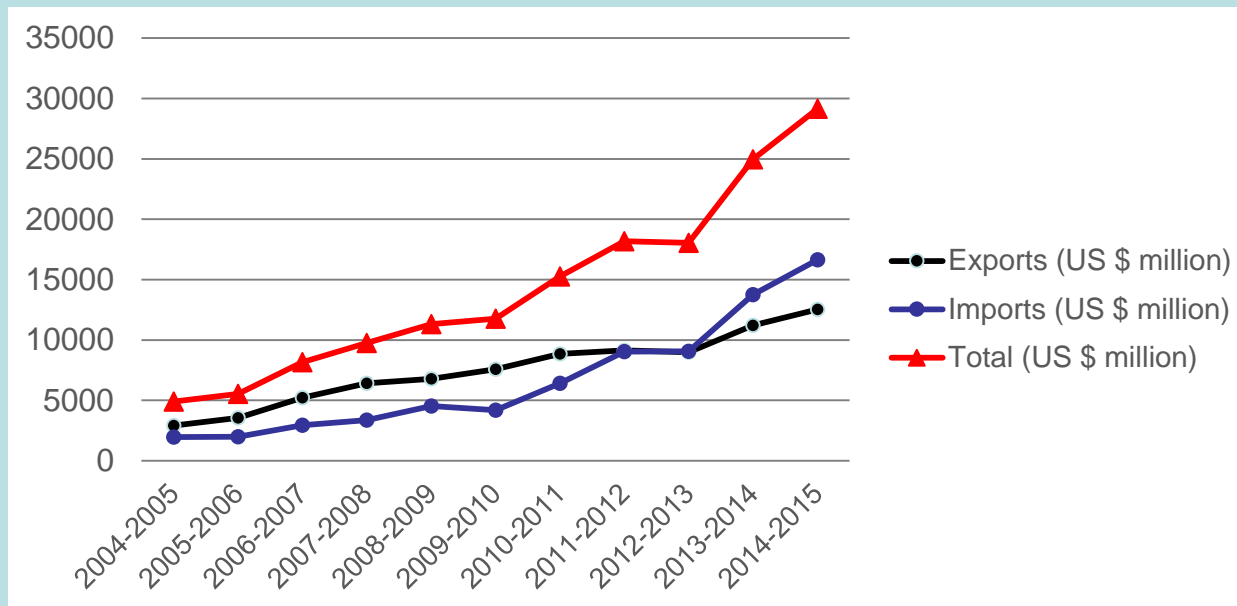


Figure 17: trends of exports, imports, and total trade value

(CSO)

Source: Central Statistical Organization

Export items are categorized as agricultural products, marine products, mineral products, forest products, manufactured products and others in Myanmar whereas imports items are grouped into three categories such as capital goods, intermediate goods, and consumer goods. Exports are dominated by manufactured products as described in figure 18. The largest value of imports were capital goods as shown in figure 19.

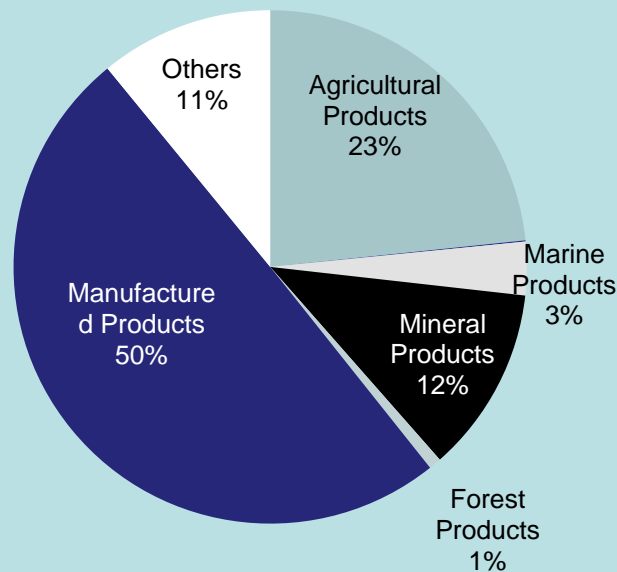


Figure 18: export categories in USD million, 2014-15

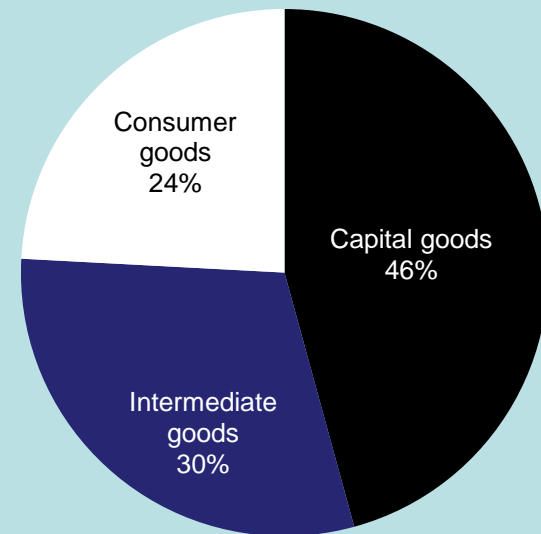


Figure 19: import Categories in USD million, 2014-15

Source: Central Statistical Organization (CSO)

- In terms of volume, major export items handled in Yangon Port include:

- timber
- pulses including various kinds of beans
- rice and rice products
- yellow maize
- fishery products

- Major import items are:

- construction materials
- machinery and equipment
- fertilizer
- crude oil
- palm oil
- wheat grain
- Cement



- China is by far the main destination for Myanmar exports: it represented 37.3% of total exports in 2014-2015 followed by Thailand (32.2%), Singapore (6.1%), India (6.0%), and Japan (4.4%).
- Likewise, China is the main origin for Myanmar imports: imports from China represented 30.2% of total imports in 2014-2015 followed by Singapore (24.9%), Japan (10.5%), Thailand (10.1%), and Malaysia (4.5%) respectively.

- More than 85% of the country's exports and imports are carried by maritime transport, making it an essential mode for logistics.
- The trend of continuously increased international trade draws attention from shipping industry.
- As described in figures 20 and 21, the volume of general cargo and container cargo handled in Yangon Port has increased year by year from 2002-03 to 2014-15. There was a slight decrease in general cargo in 2013-14 due to the log export banned.

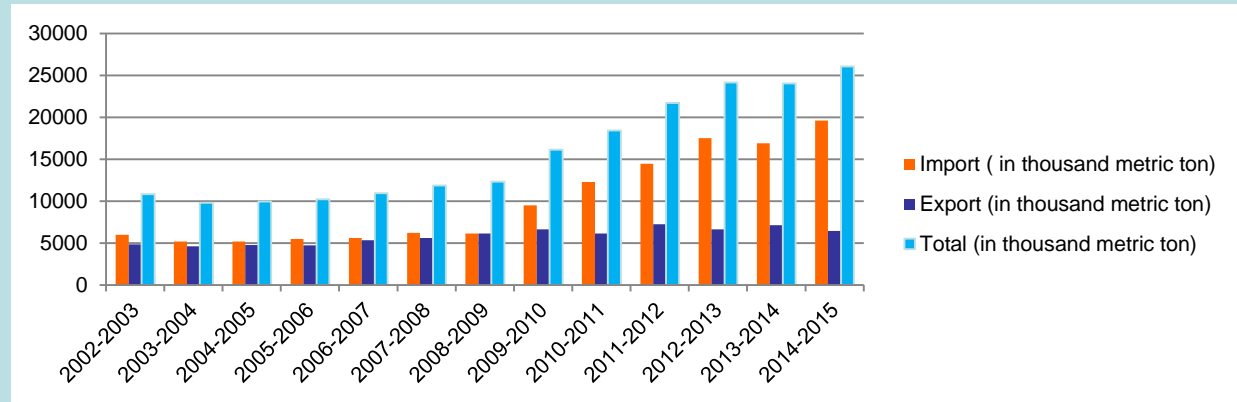


Figure 20: general cargo handled in Yangon Port (1,000 mt)

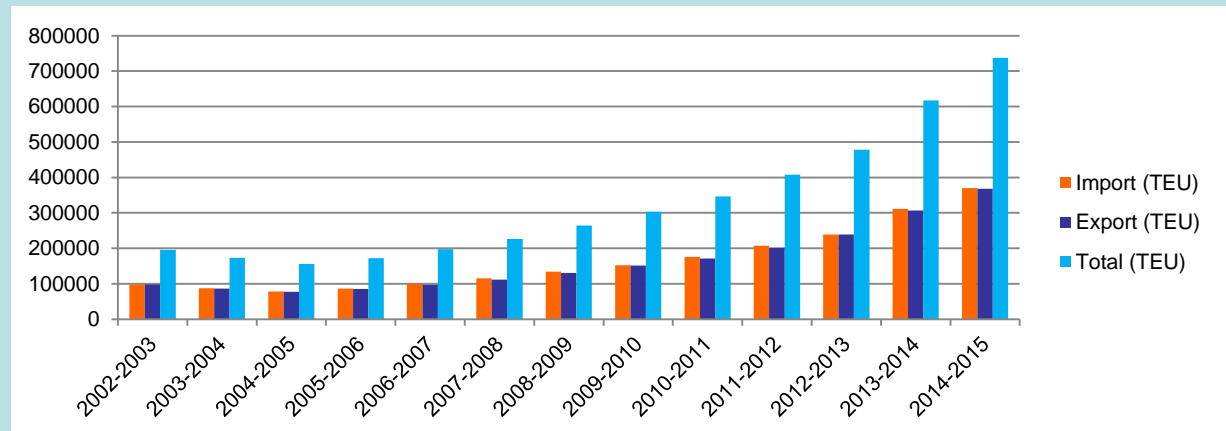


Figure 21: container cargo handled in Yangon Port (Twenty Foot Equivalent - TEU)

Source: Myanmar Port Authority (MPA)

3.4 Shipping: connectivity scores

- Myanmar's shipping connectivity index was near to zero by compared with other ASEAN member countries. The shipping connectivity index of ASEAN member countries is presented in figure 22.
- The merchant fleet of Myanmar national flag increased to 270,000 DWT (deadweight). Its share of the total world merchant fleet was 0.016% in 2014 according to UNCTAD (2015).

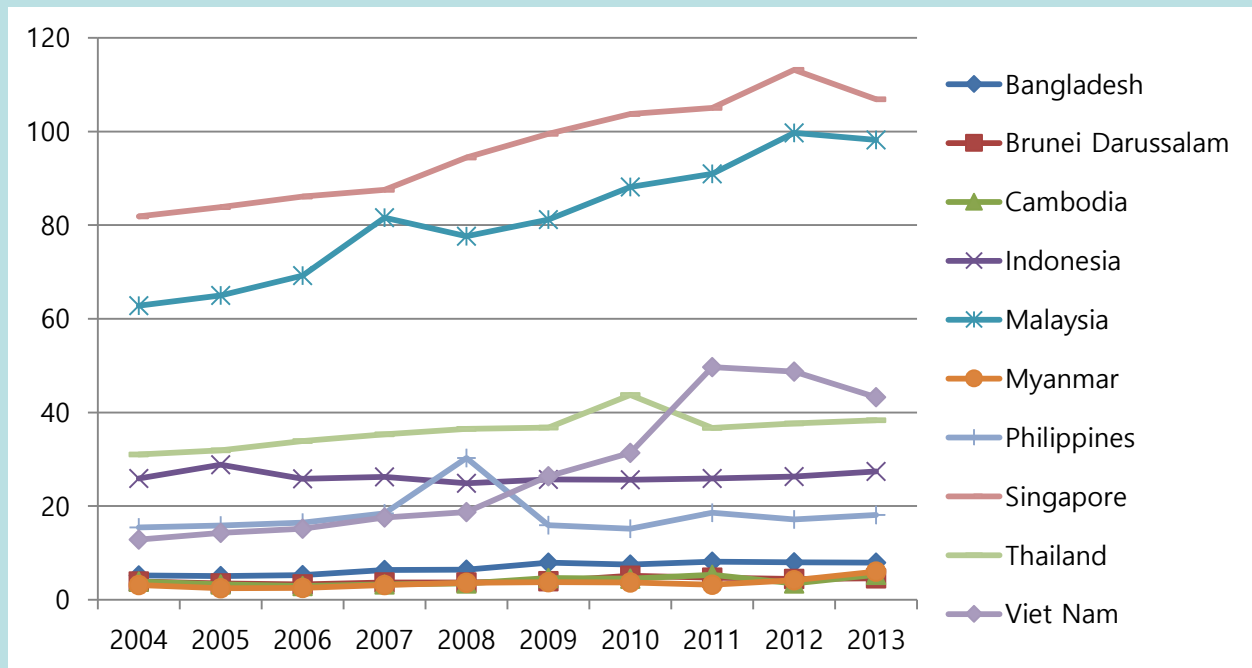


Figure 22: Shipping Connectivity Indexes of ASEAN Countries

Source: UNCTAD (2013)

- According to Clarkson database, by december 2015, the Myanmar fleet consists of 109 seagoing ships (defined by merchant vessels of 100 GT and larger), with a total of 346,205 GRT. The graph shows the year on year development.
- This fleet is composed of 45 bulk carriers, 12 containerships, 11 ferries, 5 tankers and 36 seagoing tugs and workboats. Average age is 27.6 years, average size 3,176 GT (gross tonnage).
- This fleet has expanded in 2014 and 2015 by additions to the containerfleet. It is existing tonnage that was bought by Singapore-Myanmar shipowner RK Shipping. They established a new container shipping service between Yangon and Port Klang (Malaysia).
- The Myanmar owned fleet ranks nr. 74 of the world.

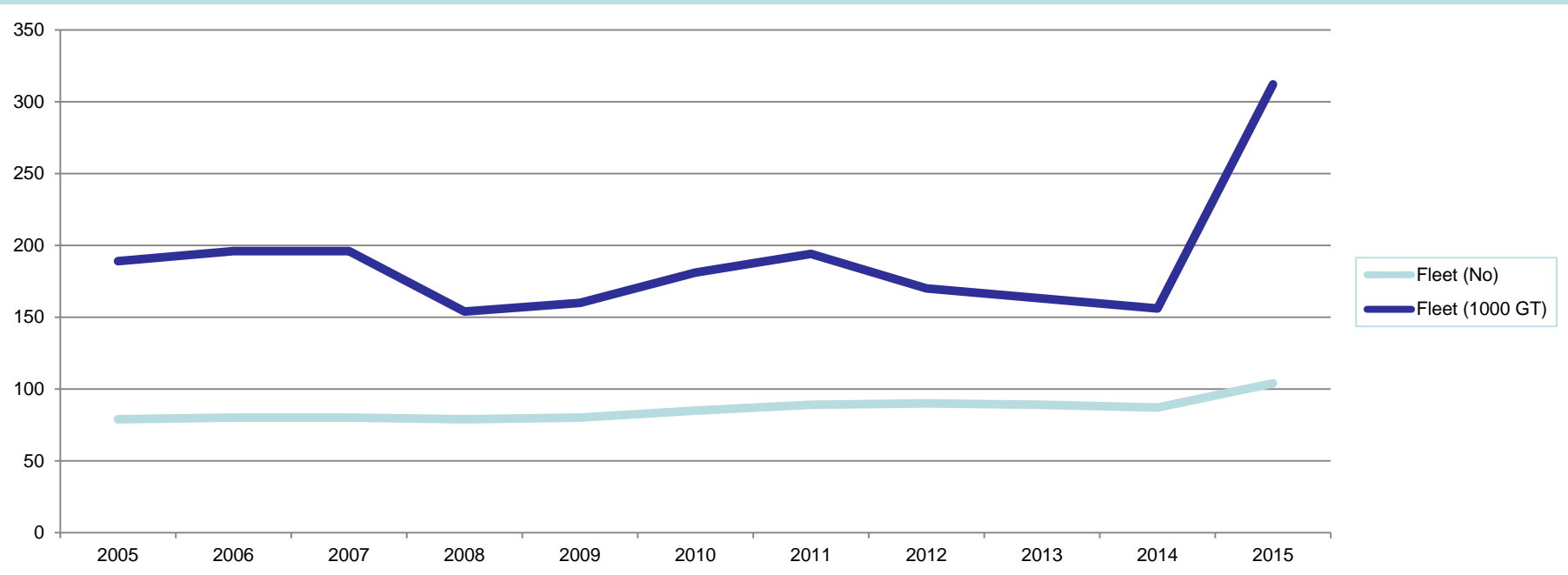


Figure 23: fleet development of Myanmar owners

- Myanma Five Star Line (MFSL) has been the only state-owned national flag carrier with a track record of more than 50 years in shipping service. It was privatized in 2010 in line with the government's economic reforms
- The majority of the MFSL's fleet is used for the Asian Region to provide conventional shipping services.
- MFSL also provides container feeder service for the trade routes of Yangon – Singapore and Yangon – Port Klang of Malaysia – Singapore. MSFL owns a container depot in Tharketa Terminal which is close to the Yangon Port area.
- Coastal services for regular passengers and cargoes are provided by MSFL between Yangon and Rakhine State in the Western part as well as Tanintharyi region in the Southern part of the country.
- MFSL has shipping agency services of its owned and chartered ships in the port of Yangon since 1992.
- MFSL's owned fleet currently consists of 25 ships, consisting of 9 ferries and 16 general cargo/multi purpose vessels, totalling 164,131 DWT and 133,952 GT.

3.7.1 Shipping: foreign shipping lines

- Most of the foreign shipping lines provide the container feeder service for transporting cargoes to and from Myanmar, and they deploy their vessels mainly on the following routes:
 - Yangon/Port Klang/Singapore,
 - Yangon/Chennai, and
 - Yangon/Port Blair.
- The shipping market can be regarded as potentially competitive because there is no entry barrier to the market; however the Government refrains from providing preferential access to cargoes and routes to any lines.
- The shipping lines and the number of vessels permitted for container transport will vary from year to year based on the permit of the Steering Committee of the Yangon Port Authority and usually eligible for one year.
- To date, there have been a total of 17 foreign shipping lines which providing container feeder services (see table 4). Other foreign shipping lines are listed by vessel type in table 5. They primarily include general cargo, RoRo, tankers, offshore vessels, and cruise vessels.
- The Myanmar Foreign-Going Shipowners' Association was established in 2014. It is now preparing for the establishment of the Coastal Voyage Shipowners' Association and Shipowners' Association for Inland Water Transport in Myanmar.

Sr. No.	Shipping Line	No. of Vessel	Terminal	TEU Capacity
1	ACL	3	AWPT	2,391
2	IAL	2	AWPT	2,317
3	WAN HAI LINE	1	AWPT	1,157
4	SAMUDERA	2	AWPT	2,505
5	EVER GREEN LINE	1	AWPT	1,296
6	HANJIN SHIPPING	1	AWPT	1,080
7	YANG MIN (S) PTE LTD	2	AWPT	1,959
8	COSCO CONTAINER LINE	1	AWPT	728
9	CHINA SHIPPING	3 4	AWPT MIP	3,627 4,260
10	RCL	2	MIP	1,957
11	CMA-CGM	2	MIP	1,744
12	MOSK	1	MIP	1,036
13	OOCL	2	MIP	2,126
14	MCC TRANSPORT	11	MIP	18,221
15	RK CONTAINER LINES PTE LTD	1	MIP	1,451
16	LAND & INTERMODAL LOGISTICS	1	MITT	2,188
17	HERBILIAN SHIPPING (PVT) LTD	1	BSW	1,118
	TOTAL	41		51,161

Table 4: Foreign Container Feeder Lines Listed on 18th February 2016

Source: Shipping Agency Department (SAD)

Vessel Type	Name of the Shipping Line
GENERAL CARGO SHIP	• WONGSAMUT OCEAN SHIPPING
	• BAY LINE PTE LTD
	• WALLEM SHIPPING
	• BEN LINE
	• MERIDIAN SERVICES LTD
	• RK SHIPPING & TRADING
	• G-LINK EXPRESS PTE LTD
	• KULATEE CO., LTD
	• SANG THAI SHIPPING CO., LTD
	• COSCO SHIPPING CO., LTD
	• BRIGHT SAIL SHIPPING CO., LTD
	• YONG SHENA INTERNATIONAL PTE LTD
	• MERIDIAN SHIP SERVICES PTE LTD
	• RK LINE
RORO VESSEL	• ECL (S'PORE) PTE LTD
	• TOKYO KAIUN KAISHA LTD
	• SEALS CO., LTD
	• K LINE
	• SINOR LINE
	• NYK LINE
TANKER	• FORTUNE SHIPPING (TOYO FUJI)
	• OCEAN TANKERS PTE LTD
	• UNITED MARINE INT'L SERVICE
	• NIKMAT MUJUR SDN BHD
	• TRADE LINK ENGINEERING
	• BRAVELY INT'L PTE LTD
	• MEGAPORTS AGENCIES
	• ICOF SHIP CHARTERING
	• RAFFLE SHIP MANAGEMENT
	• SIN SOON HOCK SHIPPING

Vessel Type	Name of the Shipping Line
OFFSHORE	• TOTAL E & P
	• PC MYANMAR HONGKONG LTD
	• SWIBER OFFSHORE CO., LTD
	• MYINT & ASSOCIATION CO., LTD
	• STAR HIGH ASIA PACIFIC
	• BOURBON OFFSHORE
	• T.H BERTHING CHART AND SHIPPING PTE LTD
	• CHUN AN SHIP PTE LTD
	• WALLEN SHIPPING CO., LTD
CRUISE VESSEL	• MYANMAR VOYAGES INTERNATIONAL TOURISM CO., LTD
	• AEGEAN EXPERIENCE
	• THE WORLD RESIDENCES AT SEA
	• ROYAL CARIBBEAN
	• CAMBIASO & RISSO
	• HOLLAND AMERICA LINE
	• FRED OLSEN CRUISES LINES
	• JUERGEN KIEING HEINRICH
	• V-SHIP LEISURE SAM
	• CRYSTAL CRUISES
	• ETIENNE PRSTON
	• PRINCESS CRUISES

Table 5: Other Foreign Shipping Lines Listed by Vessel Type on 18th February 2016

Source: Shipping Agency Department (SAD)

- All maritime services companies have to register at the Shipping Agency Department (SAD). Logistics service companies are mostly members of Myanmar International Freight Forwarders' Association (MIFFA).
- A number of shipping lines offer freight forwarding services in addition to their core maritime services. Accordingly, freight forwarders and shipping lines are in competition. The common types of services dedicated to shipping industry against their number are presented in table 6.

Sr. No.	Type of Services	Number
1	Main Line Operator (MLO)	23
2	NVOCC	15
3	Freight Forwarder	106
4	MLO/Freight Forwarder	3
5	Ship Operator	10
6	NVOCC/Freight Forwarder	31
7	Ship Operator/MLO	8
8	MLO/NVOCC/Freight Forwarder	6
9	MLO/NVOCC/Ship Operator/Freight Forwarder	4
10	Ship Operator/MLO/Freight Forwarder	1
11	Ship Operator/NVOCC/Freight Forwarder	2
12	Ship Operator/NVOCC	1
	Total	210

Table 6: type of services engaged in Myanmar shipping industry

MLO : Main Line Operator
NVOCC : non-vessel operating common carrier

Source: Ryoo (2016)

3.8 Shipping: national policy

The national shipping policy is closely related to the implementation of a “Roadmap towards an integrated and Competitive Maritime Transport System in ASEAN”. In line with this Roadmap, there are a number of plans to be carried out by the Ministry of Transport in Myanmar. These include:

- Fostering competition in shipping markets.
- Following the principle of free competition on a commercial basis for cargo movements to, from or between ASEAN member countries.
- Promoting a set of guidelines for the regulation of liner shipping markets.
- Preventing or minimizing the imposition of unjustifiable fees, surcharges by shipping lines or associations of shipping lines with a dominant position in any trade to, from or within ASEAN.
- Ensuring that any international shipping operations retained under government-ownership are corporatized and operated in accordance with commercial principles.
- Refraining from providing preferential access to routes, cargoes or contracts to shipping lines.
- Working collectively and progressively towards the development of a single integrated ASEAN shipping market.
- Developing guiding-principles for the pricing of port services based on the cost of service and infrastructure provisions.

However, some of the implementation efforts are making slow progress due to insufficient soft and hard infrastructure.

Challenges

- Agricultural Economy.
- Growing competition in the shipping industry.
- Depressing international shipping market.
- Lack of opportunities on board training of seafarers (re. Maritime education and training).

Opportunities

- Rapid economic development will increase trade flows and waterborne transport.
- Growth of Foreign Direct Investment (FDI).
- Growth of international trade.
- Development of infrastructure.
- Growing manufacturing economy.
- Abundancy in natural resources.

Conclusions

A substantial development of the Myanmar shipping industry can be expected, following the steady increase of international trade in terms of value and volume. The development of ports, terminals and inland waterways and improved information and communication infrastructure will add to the development, as well as the improved banking system. The newly formed Shipowners' Associations can help the professionalization process. Finally, foreign investments in maritime education and training centers, and also foreign investments in shipping lines will be triggered.



4. Shipbuilding & repair



- The Ministry of Transport plays an important role in the shipbuilding sector. Under the Ministry, Myanma Shipyards (MS) and Inland Water Transport (IWT) are the two major shipbuilding and repair departments.
- Myanma Shipyards is located on the Hlaing River Bank, Sinmalaik, Kamayut Township, Yangon.
- Under IWT, there are 6 dockyards for repairing and maintenance of the Inland Water Vessels.
- Other major dockyards in Myanmar mainly function as repair and maintenance dockyards for the respective departments.
 - DawPon and Mandalay Dockyard under the Department of Marine Administration.
 - SatSan and TheinByu Dockyards under Myanmar Port Authority.
- There are also many smaller-scale ship workshops, mainly for building small vessels, scattered on the river banks throughout the country:
 - 13 private dockyards on the Hlaing River bank
 - 6 along the Yangon River bank
 - 4 along the Bago River bank and
 - 1 private shipyards in Pazundaung creek.
- Most of these shipyards use slipways or air balloon to launch the vessels and building the ships are in primitive ways. with un class standards.
- Labour costs vary according to the skill: workers, technicians or supporting staffs. The wages are ranging from US 5 to US 15 daily according to the skill level.
- Shipbuilding concentrates on inland shipping, with an emphasis on inland cargo vessels. According to figure 24 a remarkable peak is witnessed around the year 2012.

Year	Inland Vessel	Cargo	Inland Passenger Vessel	Oil Barge	Total
2005-2006	62		46	28	136
2006-2007	52		97	16	165
2007-2008	46		16	11	73
2008-2009	74		27	6	107
2009-2010	63		62	13	138
2010-2011	113		27	16	156
2011-2012	255		61	57	373
2012-2013	258		29	45	332
2013-2014	101		98	44	243
2014-2015	133		68	27	228
2015-Dec	104		19	38	161

Table 7: Vessels built 2005-2015

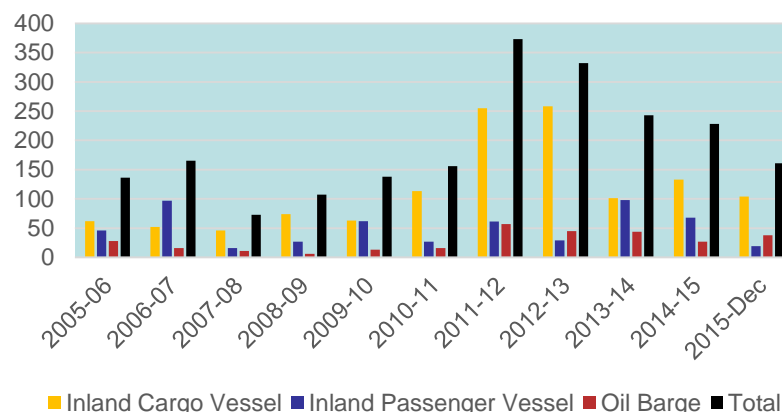


Figure 24 : Vessels built 2005-2015

Source: Department of Marine Administration



Figure 25: Cruise Ship Amarapura

Length: 57.3 m
Width: 12.194 m
Draft: 1.35 m
Decks: 3
Design speed: 10 knot
Crew total staff: 25
Passengers: 56
Gym/Fitness Center
Spa, Entertainment/ Performance
Beverages, Restaurant
Bakery, Galley, Kitchen
Open air Lounge, Doctor
Lounge, Observation Deck
Guest Relation Deck
Flag: Burma



Figure 26: Cruise ship: Sanctuary Ananda

Length: 61 m
Width: 11 m
Draft: 1.2 m
Decks: 3
Design speed: 9 knot
Crew total staff: 32
Passengers: 42
Gym/Fitness Center
Spa
Pool
Beverages
Restaurant
Library
Kitchen
Lounge
Guest Relation Deck
Flag: Burma

Myanmar Shipyards (MS)

- Myanmar Shipyards is a state-owned enterprise, established in 1970 as a ship repair yard for government owned vessels. In 1976, it was mandated to serving both public and private sectors. The shipyard is capable of building sea-going, coastal and inland water vessels up to 5,000 dwt (Lloyd's and ABS class) and repairing vessels of up to 110m in length.
- Since 1995, Myanmar Shipyards has built 20 vessels for export, mainly to Indonesia, Singapore and China. Since 1970 a total of 389 vessels were built for local and foreign owners, and 1244 vessels repaired in total.
- Seagoing vessels built include small Roro and Ropax vessels, workboats and general cargo/landing crafts. According to Clarksons international statistics, in 2014 a 2500 dwt landing craft was delivered to Singapore based MK Pioneers. In 2009-2010 two cargo ships were delivered for Thuriya Sandar Win. No further seagoing newbuilds reported since 2014.

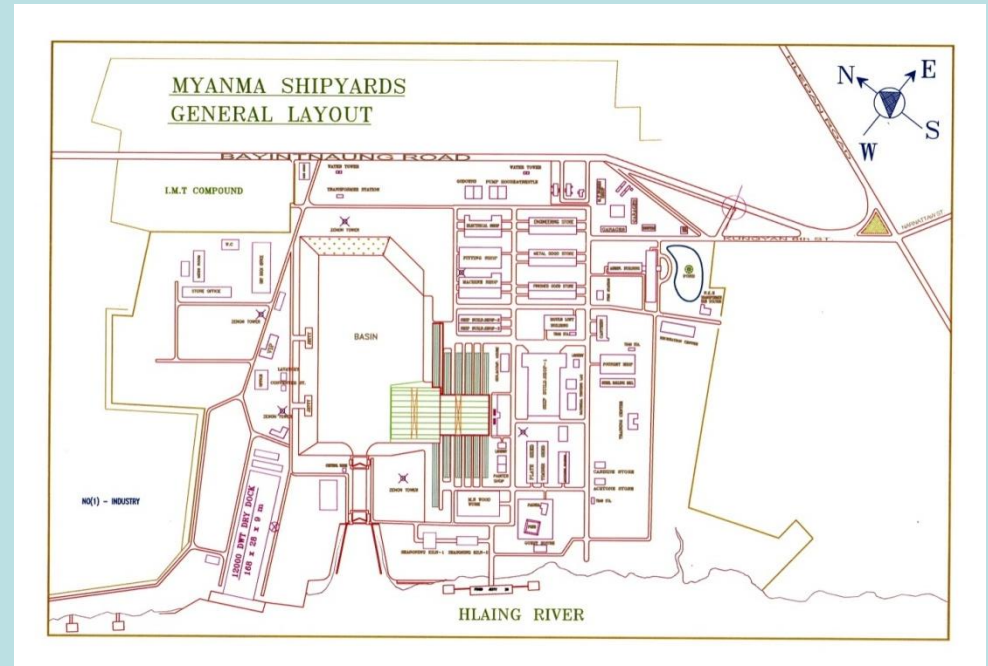


Figure 27: Myanmar shipyards layout

Myanmar Shipyards hosts a supply industry in areas such as wood working, steel fabrication and general engineering. The current facilities of Myanmar Shipyards are as follows:

- Yard Area 161.554 acres
- Yard Facilities Slipway Capacities
 - 2 * 2500 DWT
 - 4 * 700 DWT
 - 4* 350 DWT
 - Outfitting Quay 165 m L x 9 m D
 - Lock Gate 61 m L x 20 m B x 7 m D
 - Basin 320 m L x 180 m B x 9 m D
 - River jetty 61 m L x 11 m B
- Material Handling Facilities
 - 1 * Crawler Crane 80 Ton
 - 2 * Mobile Crane 35 Ton
 - 17 * cranes < 25 Ton
 - 1 * Portal Crane 13 Ton
 - 1 * Container Carrier 40 Ton
 - Weldment Block Transporter 40 Ton
- 12,000 DWT Dry Dock 168.00 m * 28.00 m * height 9.00 m
- Floating docks Two sets of 30.50 m * 4.60 m * height 10.30 m

DWT : deadweight

- With the aim of gaining capital, technology and markets to enlarge the enterprise, Myanmar Shipyard invited foreign investors
- On 31st Jan 2015, Ministry of Transport's Myanmar Shipyards and Vietnamese Dong-A Shipbuilding Industry Joint Stock Company signed an agreement with the investment of USD 175.4 million. The joint venture, with Myanmar Shipyards owning 51% of the share, is aimed at attracting more foreign orders for domestically produced ships.
- The new company is capable of building vessels of up to 22,000 dwt and repair vessels of up to 30,000 dwt. There are plans for a new dockyard capable of handling modern, larger vessels, as well as upgrades to existing shipyards, human resources improvements, more support for finding international markets and greater access to capital.
- Myanmar Shipyards – Dong A JV Co., Ltd. is now building:
 - 76 meter coastal tanker
 - 32 meter twin screw harbor tug
 - 27 meter fishing trawler,
 - 32 meter tug boat
 - 61 meter Oil Barge
- Their master plan of upgrading dockyard has already been started and they are also finding other partners. The challenges of this master plan are (1) lack of skilled labor, (2) the current decrease in offshore supply market, and (3) no backbone industry. (<http://www.mmmtimes.com/index.php/business/13057-myanmar-shipyards-partners-with-vietnam-company.html>)

- Six yards are controlled by Inland Water Transport (IWT). The functions of these dockyards are emergency docking for repair, major overhaul for engines, re-engining and annual docking for repair and new constructions for privates and governmental departments
- Most constructed ships are barges, tugs, self-propulsion barges and shallow draft vessels
- The historic IWT dockyard in Dala, Yangon, is planned to be reformed from repair to new construction. Meanwhile, the Dagon Seikkan Shipyard, also state-owned, was built with an investment of USD 9.2 million in 2013 by the Ministry of Transport. The newly-built shipyard can repair 24 ships for IWT and carry out major repair work to 46 ships on average per year. Targeted earnings of USD 695,500 for the 2015-2016 fiscal year. At present Dalla is building new cement carriers and conducts repair works for IWT vessels.

Dockyards	Location	No. of slipways			Maximum docking at one time	Max DWT for docking	Area (acres)
		Main slip way	Side slipway	Air bag way			
Dalla Dockyard	Dalla	14	-	-	34 vessels	1400	30
Dagon Seikkan Dockyard	Dagon Seikkan	2	5	1	31 vessels	1400	45
Sittway Dockyard	Sittway	1	2	-	5 vessels	250	5
Thanlwin Dockyard	Mottama	1	-	-	2 vessels	300	19
Yatanarbon Dockyard	Mandalay	1	-	-	5 vessels	300	12
Chindwin Dockyard	Monywa	1	1	-	3 vessels	250	6
Total		20	8	1	80 vessels	-	

Table 8: capacities of IWT shipyards

Source: Inland Water Transport Head Office



Picture: construction at the Dagon Seikkan Shipyard, source Global New Light of Myanmar

Subjects	Count	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Annual repairs	No.	120	107	85	68	54	40
Hull and superstructure repair	No.	320	309	268	228	211	120
Major overhaul	No.	279	267	250	190	141	80
Emergency repair	No.	577	507	446	319	258	120
Partial overhaul	Frequency No.	1,983	1,881	1,864	1,579	1,146	450
Own vessel building	No.	-	1	1	-	-	-
Steel consumption:							
Steel plate	ton	1,281	1,649	1,521	918	807	1,246
Angle and Web	ton	173	166	144	98	72	107

Table 9: Ship repair, building and steel at IWT yards

4.5 Shipbuilding & repair: coastguard and navy

- The current fleet of Myanmar consists of 159 units, including five stealth shaped frigates, built in 2008-2015, with five newbuilds underway. There are three corvettes of which one to be commissioned 2016, 37 fast attack craft, 42 river patrol craft, and a range of other vessels, including a floating dry dock and logistic operation support ships. Weaponry comes mainly from China
- Construction and maintenance is being done at the naval dockyard in Thanlyin. From 2001 onwards there has been a modernisation plan of the fleet. In May 2008 25 vessels were destroyed by cyclone Nargis.



4.6 Shipbuilding & repair: challenges

- Lack of skilled Labour
 - Absence of high skills and advanced technology
 - Most of the workers are not certified
 - most workshops use traditional ways of assembly and fabrication
- Lack of supply Industry
 - Absence of an organized material and spare parts supply
 - Basic materials such as steel plates and machineries are imported from the neighboring countries
 - Which costs the builder more time and money
- Insurance
 - The Insurance Policy of Myanmar is also being a challenge to the Shipbuilding Industry. Marine Hull Insurance is only available from Myanmar Insurance, the state-owned insurer, and insurance doesn't cover the cost of the vessel
- Taxation
 - 5% commercial tax on in and outbound transactions
 - Tax cuts are considered case-by-case, leading to the difficulties in estimation of the profit
 - According to the Members of the Board of Directors of Myanma Shipyards, the total tax maybe as much as 12% of the value of the vessel.
- Lack of shipbuilding rules and regulations
 - Department of Marine Administration regulate the safety of vessels, but it is still necessary to published the rules and regulations for classification of ships base on national standards.
 - Professional bodies is necessary to set up to fill the gap of the requirements.

Opportunities

- Along with the plans to develop deep sea ports at Kyaukpyu and Dawei, new shipyards and maintenance hubs will be necessary. This could be of benefit considering the deficiency in infrastructure and skilled labour
- New opportunities come from the many offshore blocks developed in Myanmar. The demand for basic offshore support vessels will logically grow. It is however unclear if local companies will play a role in ship management and logistics, and which role local fabrication and maintenance will play
- As Myanmar's domestic trade will grow, the Ayeyarwaddy River and Chindwin River will have to be brought up to standard. Dredging and deepening of the river floors will be needed. In future, Myanmar will need many river dredgers in order to maintain the navigability
- Myanmar's economy is predicted to grow in the near future and infrastructure will be needed to support the offshore, dredging, port operations, coastguard and fisheries sectors. It can be interesting for Dutch shipyards to investigate possibilities of technology transfer and co-operation programs.

Conclusion

The shipbuilding industry of Myanmar is still a small scale industry, which focuses on the construction and maintenance of the domestic inland cargo and cruise vessels market. Despite the low labour costs, the sector is not able to compete internationally due to lack of facilities, skills, shipbuilding rules and regulations, lacking technology and an unfavorable tax climate. The potential of the market lies in the political reforms, with government trying to attract foreign investments.



5. Offshore



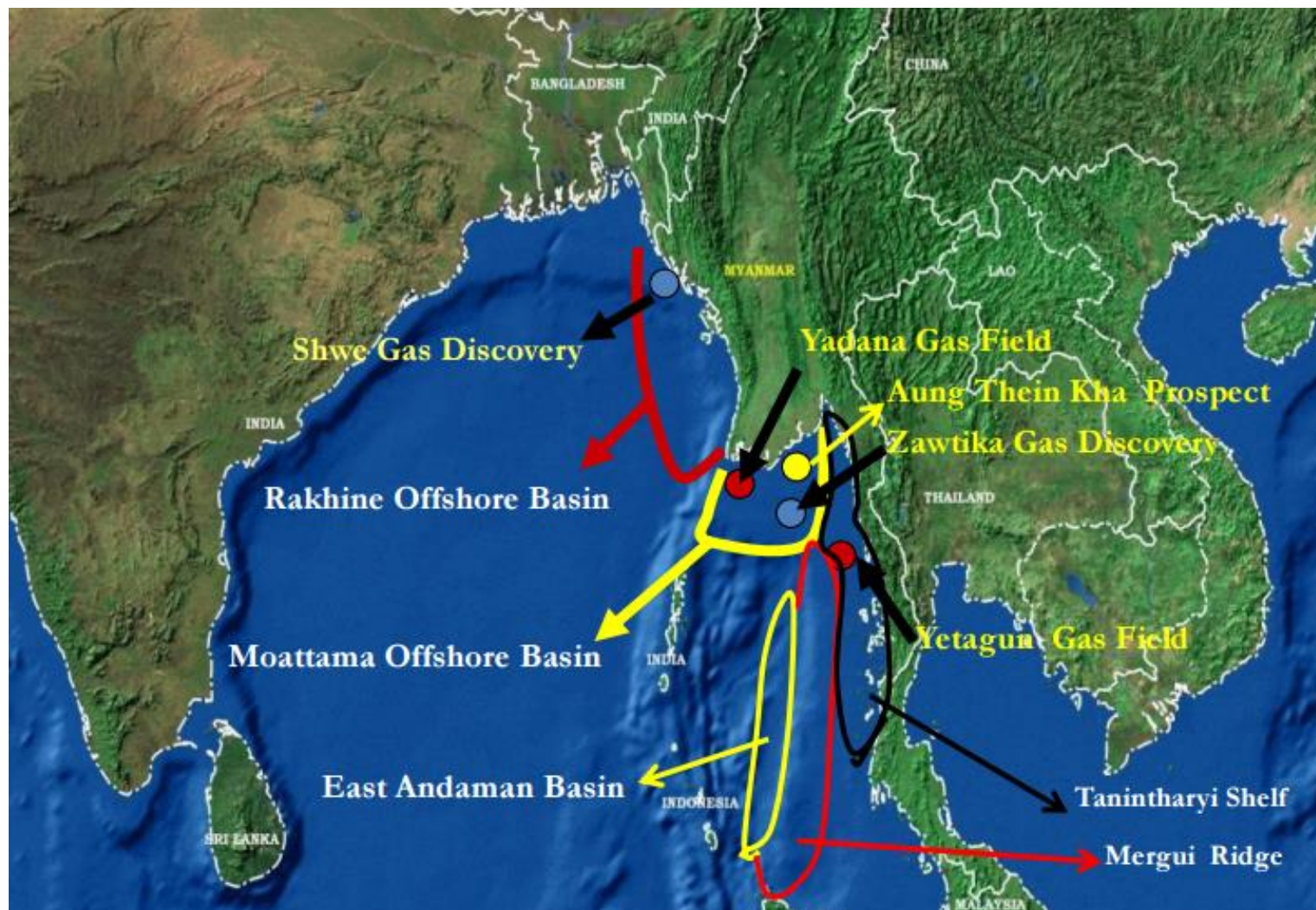


Figure 28: offshore basins

- Following the lifting of sanctions and energy sector reforms, more petroleum products will be required to meet growing living standards. Myanmar has been opened up for exploration following the political reforms of 2011 and subsequent lifting of European Union and US sanctions, enabling international companies to reenter the region. Drilling programs began in 2014. The country is estimated to contain 50 million barrels of oil and 10 trillion cubic feet (TCF), according to EIA.
- The country produces a minimal amount of crude oil and condensates from the onshore Salin basin and offshore Yetagun field. Burma's limited production and refining capacity are insufficient to meet domestic consumption for crude oil and petroleum products, making the country a net oil importer. Gas however comprises 90 percent of total products, and Burma is the 10th largest producer of natural gas globally – the bulk of which is exported to China and Thailand (source: UKTI)
- Impediments to develop its production potential are:
 - financial constraints by the national oil company
 - a lack of technical capacity
 - opaque regulatory policy
 - insufficient investment by foreign firms
 - international sanctions
- As part of its most recent bidding rounds initiated in 2013, Myanmar awarded 16 onshore and 20 offshore blocks to several foreign and domestic companies. The government decided to delay launching the next offshore bidding round until 2017 at the earliest. Total number of offshore blocks is 51.
- Myanmar's natural gas production has increased substantially over the past decade, rising from 61 billion cubic feet (Bcf) in 1999 to 463 Bcf in 2013. The country's current natural gas output mostly comes from the offshore Yadana and Yetagun fields in the Moattama basin, but is forecasted to rise further as a result of new projects coming online (source: US Energy Information Administration, June 2015)
- In January 2016, Woodside Petroleum (Australia) made a natural gas discovery with its first well in the Rakhine Basin. Further analysis will now be undertaken to evaluate the full potential, but Woodside has said the find de-risks a number of leads in the region. The well is on the A-6 block where it is operator for local company MPRL and Total SA, a JV that Woodside entered in December 2012. The company has interests in six large offshore permits in Myanmar covering a total of 46,000 sq km (source OGJ)

1966

Start offshore exploration. three main offshore areas were defined

- Rakhine Offshore
- Moattama Offshore
- Tanintharyi Offshore

up to 1988

40 exploration wells drilled

- Rakhine offshore area: 7 exploration wells by foreign oil companies - no discovery
- Moattama offshore: very good hydrocarbon accumulation in blocks M-3, M-5, M-6 and M-7. MOC drilled by owned jack-up drilling rig Nay Min Yaung

after 1990

Foreign investments invited by government for oil & gas exploration in onshore and offshore under PSC-contract

- Total signed PSC contract in Moattama Blocks M-5 & M-6 in 1992 and started exploration activities and appraisal drilling in these blocks. After drilling about 10 wells in blocks M-5 and M-6, announced commercial discovery of Yadana field in 1995. Total commenced development works of Yadana Project in 1997
- Premier Oil signed in Tanintharyi Blocks M-12, M-13 & M-14 in 1990 and acquired 2D & 3D seismic surveys
- Premier Oil drilled about 16 exploration and appraisal wells in 1992 and discovered Yetagun Gas Field in the same year. Premier announced commercial discovery of Yetagun field in 1997. Premier Oil commenced development works Yetagun Project in 1999
- Arco signed in Block M-9 of Moattama Offshore and drilled 2 exploration wells in 1997, one exploration well named Shwe Pyi Htay-1 tested gas and condensate.

5.4 Offshore: current landscape

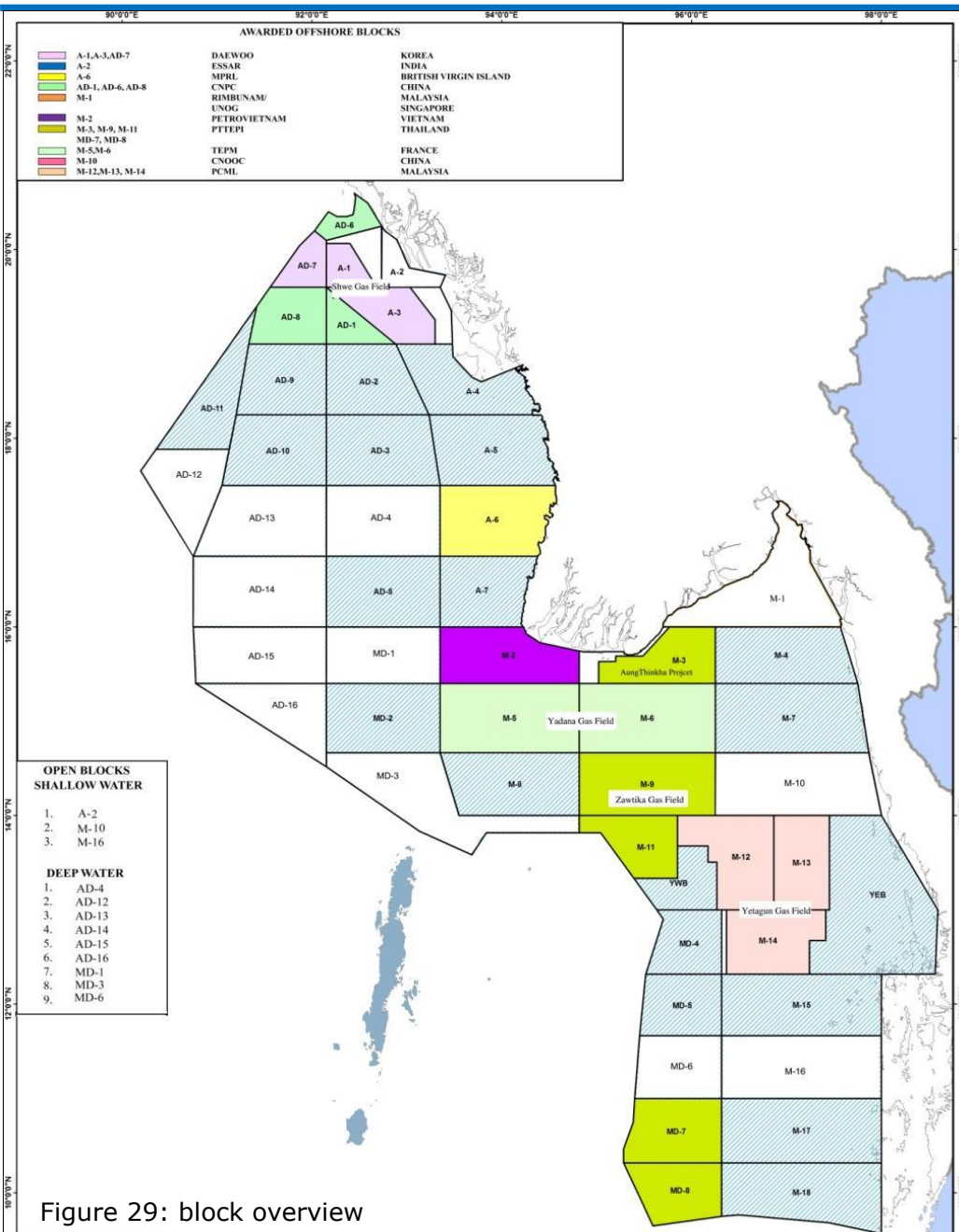


Figure 29: block overview

2012

- MOGE published a new concession map with in total 51 blocks, 26 for shallow water and 25 for deep water:
 - Rakhine Offshore area 23 blocks
 - Moattama Offshore 14 blocks
 - Tanintharyi Offshore 14 blocks

2014

- Exploration and development activities performed on 8 offshore blocks

2015

- 20 new offshore blocks are awarded to international oil companies.

2015-2016

- Seismic surveys and start of exploration works

Major players include:

- Total Yadana Project: gas production is 850 million MMSCFD (of which 650 is produced for Thailand)
- Petronas Yetagun Project: Tanintharyi offshore area, gas production is 250 MMSCFD to Thailand only. Some condensate.
- Daewoo Shwe project in block A-1 of Rakhine offshore area. Production is 500 MMSCFD (80% to China)
- PTTEPI Zawtika Gas Project by PTTEPI (Thailand) in Moattama offshore blocks M-9. Production is about 360 MMSCFD.

MOGE Organization

Under the Ministry of Energy, Myanmar Oil & Gas Enterprise (MOGE) is a state owned Organization which operates and regulates oil & gas exploration activities and supervises all the foreign Oil & Gas operators who are implementing exploration works under Production Sharing Contracts.

Model Production Sharing Contract (PSC)

Offshore PSC's royalties are 12.5%, cost recovery limited to max 50%.

Phasing of a PSC:

1. Study Period (6 – 12 months, operator can study based on existing data)
2. Signing Bonus (If operator decided to enter into exploration period)
3. Exploration Period (3 years or more)
4. Production Stage (20 – 30 years)
5. Production split (based on production volume and water depth – deepwater or shallow water production)

The awarded company has to perform environmental and safety impact studies within 6 months after signing date, and submit a report to the Ministry of Energy. After approval by Myanmar Investment commission (MIC), the operator can declare commence of operation date for the study. The operator has to conduct seismic survey and exploration drilling in line with schedule as agreed in their PSC. Myanmar Oil & Gas supervise and support all operators and monitor all necessary works to be done.

Approvals

As a procedure, all operators have to submit work programs and budget for respective year to MOGE. MOGE technical team will verify and check all the documents thoroughly and MOGE management will put it up to Ministry of Energy to take approval.

Material Importation

Material imports are exempt from duties. Tax for any material direct involve to operation will be responsible by MOGE during the study and exploration periods. All the budget under PSC will be cost recoverable. Income tax stands at 30 percent.

Bidding

All the biddings for offshore blocks are international bidding system started from 2012-13. The main important point is work commitment and budget and good experience of the contractor is preferable.

Operators	Blocks	Operation	Remarks
Daewoo	A1, A3	Production	Shwe Project
Daewoo/Woodside	AD7	Exploration	
MPRL/Woodside	A6	Exploration	
Petro Vietnam	M-2	Exploration	
PTTEPI	M3/ M11	Exploration	Zawtika Project
	M9	Development	
	MD-7/MD-8	Study period	
TEPM	M5,M6	Production	Yadana Project
PCML	M12, 13, 14	Prod/Exploration	Yetagun Project
CNPC	AD-1, 6, 8	Exploration	

New awarded Companies for Shallow Water Blocks in 2014-15

1. A-4, A-7 BG Asia Pacific Pte. Ltd. / Woodside Energy
2. A-5 Chevron (Unocal Myanmar Offshore Co. Ltd.)
3. M-4 OIL India, Mercator Petroleum and Oilmax
4. M-7 YEB Tap Oil Ltd.
5. M-8 Berlanga Holding B.V.
6. M-15 Transcontinental Group (TRG), CFG
7. M-17, M-18 Reliance Industries Ltd.

New awarded Companies for Deep Water Blocks in 2014-15

8. AD-2 BG Asia Pacific Pte. Ltd. / Woodside Energy
9. AD-3 Ophir Energy Plc
10. AD-5 BG Asia Pacific Pte. Ltd. / Woodside Energy
11. AD-9,AD-11,MD-5 Shell Myanmar Energy, MOECO
12. AD-10 Statoil and ConocoPhillips
13. MD-2,MD-4 Eni Myanmar B.V
14. YWB Total E&P Myanmar

- Currently there are four supply bases for the Myanmar offshore fields: Thaketa, Kyaukpyu, Ranong and Singapore. Drilling support comes from Ranong and Singapore. Additional requirements are floating deck cargo storage, and floating bulk storage (fuel, mud).
- There are challenges in different areas:
 - Availability of equipment and vessels.
 - Sub optimal infrastructure (roads, internet, energy supply, offshore supply bases)
 - Trade processes; import, re-export, customs, legal impediments.
 - Availability of skilled labour.
- The current offshore supply bases (OSBs) have limited draft, low capacity and far away from some fields. The existing OSB's need to be optimized, and new ones will have to be established.

Existing ports

Additional information

Yangon	Thakita Offshore Base Thilawa SEZ – Japan driven, under construction
Sittwe port	Indian driven river projects
Kyaukphyu	China driven deep water projects Oil / gas terminal & pipeline Bidding round
Mawlamyine	Initial stage of development
Dawei	SEZ – Thai driven. On hold
Thandwe / Patheingyi / Myeik / Kawthaung	No O&G related developments.

Table 10: Myanmar ports for offshore activities

Source: Peterson : Myanmar offshore logistics (2015)

Opportunities

- Port and logistics infrastructure for offshore operations
- Dredging support
- Coast guard investments
- Search and rescue equipment
- Capacity building, knowledge transfer
- QHSE (Quality, Health, Safety, Environment) analysis and related services

Conclusions

- Four operators are performing seismic surveys in 2015 in about eight blocks, other seismic activities in 2016 by seven oil companies. 3-5 exploration wells will be drilled and PTTEPI will drill 36 development wells in block M-9 Zawtika project in 2016 and 2017. Four drilling platforms will be installed in this project.
- In 2016-18 there will be many exploration activities. This is a good opportunity for service contractors who will be involved in exploration works. Petronas will drill three development wells in Yetagun, Total seismic survey in Block M-6 for new exploration wells to be drilled in 2016-17, Daewoo: one exploration well in Block AD-7 and MPRL will drill one deepwater well in Block A-6, MOGE has planned to establish an offshore supply base in Myanmar waters to support all exploration activities.
- Four shallow water blocks are now open for exploration and there are still six open blocks available in Rakhine Deep area and three blocks in Moattama Deep area.
- Most offshore areas already proved hydrocarbon and production potential. Four existing fields are very encouraging and new prospects will be found. The government encourages foreign investments in order to develop the 10 trillion cubic feet of proven natural gas resources.
- Deep water blocks are virgin potential areas for Myanmar Offshore. At present, nine deep water blocks are open for future exploration in shallow water areas, currently producing from 4 development projects and another 4 shallow water blocks are to be opened with existing complete data.
- There is an outspoken need for suitable offshore supply bases and logistic support. It is now partly organized from Thailand and Singapore, but due to the large distances, this is too costly and time consuming. There is a large demand for this type of operational support in offshore operations.
- Royal Dutch Shell is an active player, especially now British Gas has been taken over. In 2015, Shell entered into an agreement with Thai companies to develop a liquefied natural gas (LNG) terminal at the Dawei special economic zone.



6. Fisheries



- The fishing sector is considered one of the most important agricultural sectors in Myanmar. It fulfills the protein requirement of the people of Myanmar, as well as food security and employment. Fish and prawn are regarded as not only a staple foodstuff for people but also one of the important sources of foreign exchange income for country.
- Some figures:
 - Per capita consumption of fish: 42.5 kg/year (2007).
 - The fishery sector contributed 7.6% to the national GDP in (2009-2010).
 - The total production of fish was 5.05 million metric tons, of which 46% freshwater fish.
 - Export value of fish was USD 536.274 (2013-14), 7 % of the total production of fish.
- Modes of fishing activity:
 - Nearshore: max 5-10 nautical miles from shore, small-scale vessels <30m length.
 - *Offshore*: from outer limit of the inshore fishing zone to the Exclusive Economic Zone (EEZ), with trawlers, purse seiners, and long lines.
 - *Fresh Water Fisheries: Leasable Fisheries* in exclusive key fishing grounds on floodplains, and open fisheries covering all other areas (licensed by DOF).
- The aquaculture Division comprises of three sections:
 - Fish and Shrimp Culture Section,
 - Aquatic Animal Health and Disease Control Section and
 - Water Quality Management & Freshwater Fish Research Section.

Year	Small Fishing Boat		Offshore Vessels		Total
	Powered Boat	Non-Powered Boat	National	Foreign	
2004-2005	14176	16687	2150	451	33464
2005-2006	14099	16361	2022	254	32736
2006-2007	14284	16284	1871	206	32645
2007-2008	14289	15219	1863	248	31619
2008-2009	14025	14645	1758	356	30784
2009-2010	13788	17054	1814	391	33047
2010-2011	13823	15548	2196	396	31963
2011-2012	12288	15463	2598	245	30594
2012-2013	12157	12757	2724	139	27777
2013-2014	12456	13723	2693	153	29025

Table 11: Number of Fishing Vessels

States and Regions	Trawl	Purse Seine	Drift net	Long line	Stick-held falling net	Trap	Total
Head office	19	2	1	-	-	2	24
Rakhine	50	3	-	-	-	1	54
Taninthayi	563	216	3	26	345	104	1257
Ayeyarwady	-	-	401	1	-	1	403
Mon	-	-	166	-	-	-	166
Yangon	506	62	198	3	-	20	789
Total	1138	283	769	30	345	128	2693

Table 12: Kind of gears of offshore fishing vessels

Source: Fisheries Statistics (2014)

Year	Total	Aquaculture Fisheries	Leasable Fisheries	Open Fisheries	Marine Fisheries
2004-2005	2217.47	485.22	136.79	366.75	1228.71
2005-2006	2581.78	574.99	152.69	478.43	1375.67
2006-2007	2859.86	616.35	170.10	548.09	1525.32
2007-2008	3193.92	687.67	191.05	625.44	1689.76
2008-2009	3542.19	775.25	209.72	689.71	1867.51
2009-2010	3921.97	858.76	237.46	764.97	2060.78
2010-2011	4163.46	830.48	250.04	913.12	2169.82
2011-2012	4478.21	898.96	282.64	963.82	2332.79
2012-2013	4716.22	929.38	290.00	1012.97	2483.87
2013-2014	5047.53	964.26	304.44	1076.59	2702.24

Table 13: annual fish production

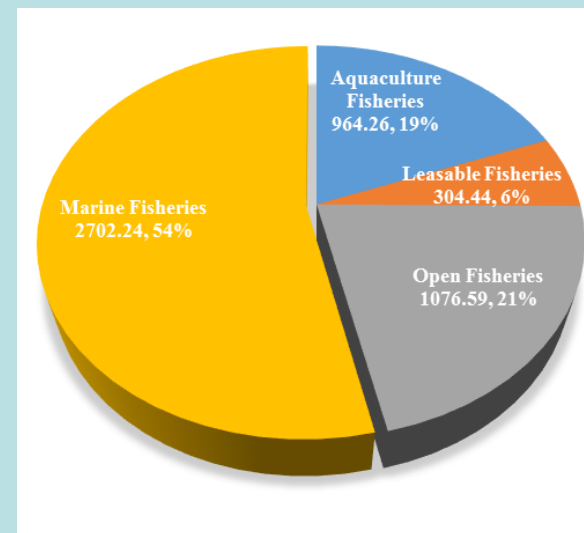


Figure 30: annual fish production, shares 2013-14

- There are about 646 species of marine fisheries in Myanmar waters, and most of the fish for export come from this source. The major export items consist of sea water shrimp (headless, head-on), sea water fish (frozen), sea water fish (chilled), dried fish, lobster, and live fish
- At present, most of Myanmar's fishery products are exporting in the forms of fish and shrimps alive, chilled, frozen, fillet, gutted types in the modes of air, sea and road. Myanmar fish and fishery products are exported to 27 countries, mainly to China and Thailand.

Year	Quantity (Metric Ton)	Value (US \$ million)
2004-2005	103,535	190
2005-2006	189,891	271
2006-2007	343,426	469
2007-2007	351,652	561
2008-2009	324,710	483
2009-2010	375,092	497
2010-2011	373,892	556
2011-2012	386,981	654
2012-2013	376,845	653
2013-2014	345,267	536
2014-2015	338,210	482

Table 14: Fishery exports from 2004-05 to 2014-15)

No.	Countries	Quantity (Metric Ton)	Value (US \$ million)
1	China	82,666	199
2	Thailand	126,646	129
3	Malaysia	16,460	35
4	Kuwait	26,197	27
5	Singapore	20,086	25
6	Saudi	19,672	24
7	Japan	6,490	23
8	UAE	16,008	18
9	UK	7,123	14
10	Bangladesh	8,191	9

Table 15: Top 10 Import Countries of Myanmar Fishery Products

Source: Fisheries Statistics (2014)

Challenges

- One of the great threats on Myanmar is economic sanctions, embargos, and other export barriers like high tariffs, trade quota, dumping and high standard settings by industrialized countries.
- Moreover, the weak infrastructure (energy supply, banking, transportation and communication systems) of Myanmar during politically transitional period is another threat to do business.
- Illegal fishing practices and over-fishing pose a threat.
- Similarly, the widespread fish smugglings in the wider region are still uncontrollable, unrecorded and untaxed. This means not only the taxes but also other benefits are losing out for Myanmar, which is another threat to conserve her fishery resources.
- Another inevitable threat for fishery industry beyond the control of human being is occurrence of natural disasters.

Opportunities

- Advantage for Myanmar is its possession of abundant resources, and its sustainable natural environment.
- Being a member of ASEAN and AFTA in the region, international trade is opening up.
- There is a large local and international market because of high per capita fish consumption.
- Lacking exploitation of both local and foreign investors gives room for new initiatives.
- Foreign investments in the Myanmar fishery industry are currently concentrated on fish-processing rather than aquaculture for which Myanmar has an adequate and untapped factor of production "land".
- The responsible policy makers in this field are eagerly welcome to any foreign investment in the form of capital or technology.

Conclusions

- Myanmar is rich in its marine resources and certainly has the potential to accelerate the fishing industry
- However: technical know-how is lacking, intensive capital investments are required, building marketing channels is difficult, and public support is too weak for a rapid development. A more supporting government role is needed, through industry policy as well as rules and regulations
- The fishery and aquaculture industries are an important pillar for the economic development of Myanmar. This pillar will be strengthened in line with structural changes in the Myanmar political arena. Domestic as well as international entrepreneurs are being sought for further sector development of the countries potential in this field.



7. Maritime Education and Training



- Myanmar always had a marine infrastructure, and seafarers have a good reputation. They are employed in the region, but on global trading vessels as well. Within the country a marine way of life is still highly regarded. Education and training facilities are available.
- The maritime college and university are departments of the Ministry of Transport. The marine education and trainings are directed by the Department of Marine Administration (DMA), which is one of the departments under the Ministry of Transport.
- The governmental development strategy as described by Ryoo (January 2016), highlights the focus on maritime education and training institutes, including investments in maritime education and training:
 - Developing education programs on maritime business, marine insurance, ship broking, ship chartering, shipping agency, maritime policy, etc.
 - Attracting high quality instructors in Maritime Education and Training (MET).
- Seafarers education and training standards are in accordance with the IMO STCW standards as ratified by Myanmar. Myanmar is on the IMO STCW white list and has signed the STCW Manila amendments.
- Myanmar has not signed the ILO Maritime Labour Convention (MLC), but the DMA currently prepares ratification of this convention.

IMO : International Maritime Organization
STCW : Standards of Training, Certification and Watchkeeping
ILO : International Labour Organisation

- Currently Myanmar can be considered as a niche for the global labour supply market.
- In the global market Myanmar seafarer wages are generally at par with seafarers from the Philippines.
- Seafarers are mainly employed on Korean and Chinese vessels.
- Uniteam (Cyprus) is the only European ship manager sourcing crew from the Myanmar and actively supports training of seafarers in Myanmar.
- Specific West European ship owners employ seafarers from Myanmar on non European flagged vessels.
- International sources suggest the potential of this market to be developed as a new source for the global labour supply market.

Area	Officers		Ratings	
OECD countries	184	29,5%	143	19,1%
Easteren Europe	127	20,4%	109	14,6%
Africa / Latin America	50	8,0%	112	15,0%
Far East	183	29,3%	275	36,8%
Indian Sub-Continent	80	12,8%	108	14,5%
Grand Total	624	100%	747	100%

x 1000

Main global labour supply countries				
Philippines	57.700	9,2%	23.500	3,1%
China	51.500	8,3%	90.300	12,1%
India	46.500	7,5%	16.200	2,2%
Ukraine	27.200	4,4%	11.000	1,5%
Russia	25.000	4,0%	40.000	5,4%
Romania	18.600	3,0%	5.800	0,8%
Poland	17.900	2,9%	4.800	0,6%
Indonesia	15.900	2,5%	61.800	8,3%
United Kingdom	14.700	2,4%	8.500	1,1%
Croatia	11.700	1,9%	7.000	0,9%
Myanmar	10.900	1,7%	20.200	2,7%
Vietnam	10.700	1,7%	11.400	1,5%
Others	315.700	50,6%	446.500	59,8%
Grand Total	624.000	100%	747.000	100%

BIMCO/ISF 2010 estimates 2010

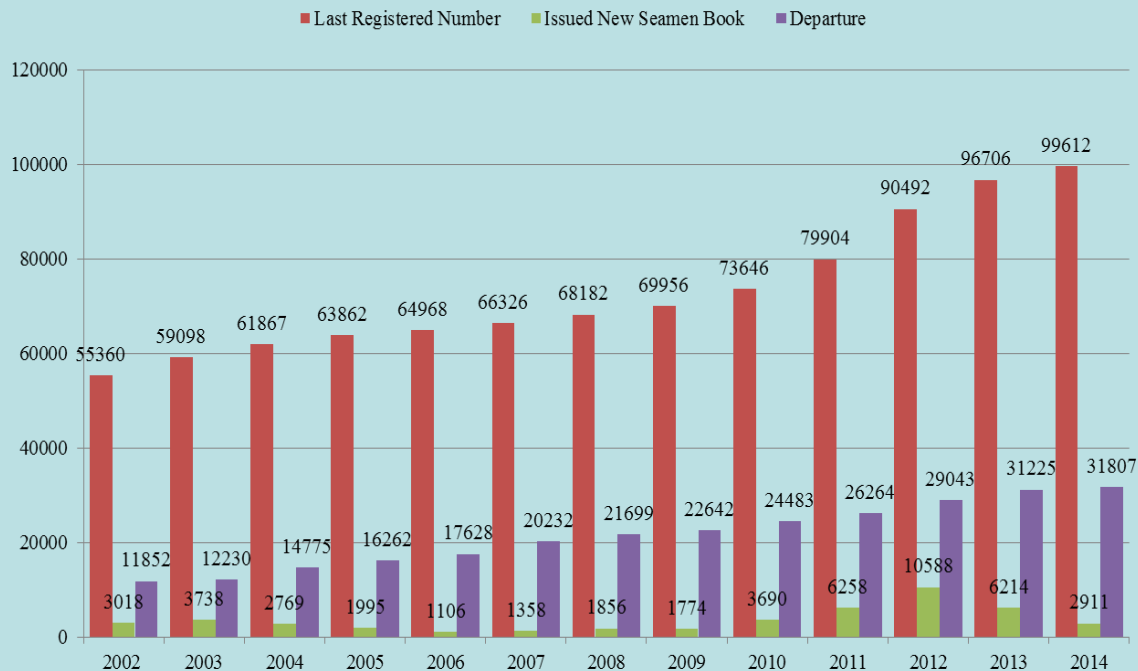
BIMCO/ISF 2015 estimates are expected soon

Table 16: world marine labour supply

7.3 Maritime education and training: DMA statistics

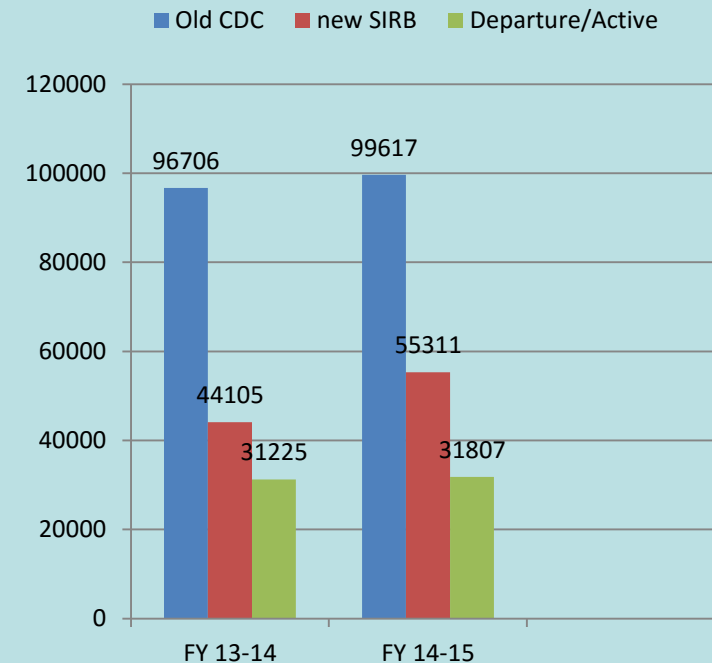
To meet requirements for the IMO STCW Manila amendments the DMA implemented new regulations for Certificate of Competency (COC) and Certificate of Proficiency (COP) trainings and refresher trainings (every 5 year). As part of the process seafarers had to replace their old Continuous Discharge Certificates (CDCs) by the new Seamen Identification and Record Books (SIRBs) before July 2015.

This exercise resulted in a clean-up of the number of licensed seafarers which now stands at 55,311. The active number of seafarers is 31,807 which is an indication of the number of seafarers able to find employment.



Figures 31 & 32: Registered seafarers at the Department of Marine Administration (DMA)

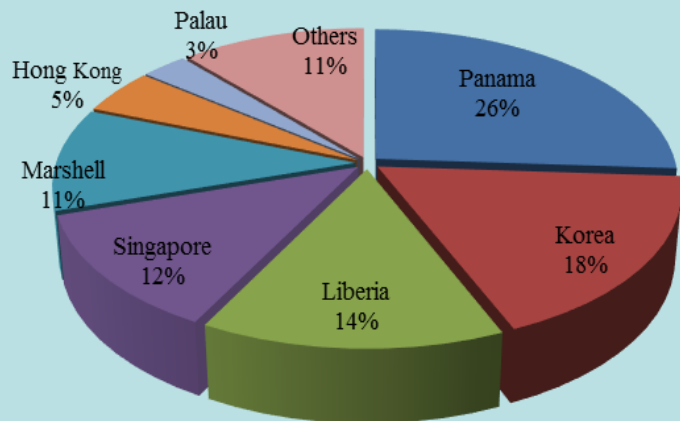
Source: Seafarers Division (PPT, p.6)



Source: Seafarers Division (PPT 2, p.4)

IMO : International Maritime Organization
STCW : Standards of Training, Certification and Watchkeeping

- Annual salaries for officers are approximately 38 times and ratings approximately 11 times of the 2014 GDP per capita (1269 dollars, Ryoo, 2015, p.24). This comparison is however not adjusted to per working day, but clearly seafarer wages are highly attractive.
- Most seafarers are assigned to foreign flag vessels because there is no significant tonnage under Myanmar Flag. Foreign shipowners/managers/recruiters are vital for the employment of Myanmar seamen.
- Until 2012 the DMA collected a 10% income tax on seafarer wages. This taxation was abolished to increase international seafarer job opportunities.
- Seafarers deployed on foreign vessels are mainly employed and paid from outside Myanmar (and paid into seafarers' foreign private bank accounts, mainly in Singapore).



Based on crew top 20 crewing companies/agencies

Figure 34: Distribution of Seafarers by Flags of Ships

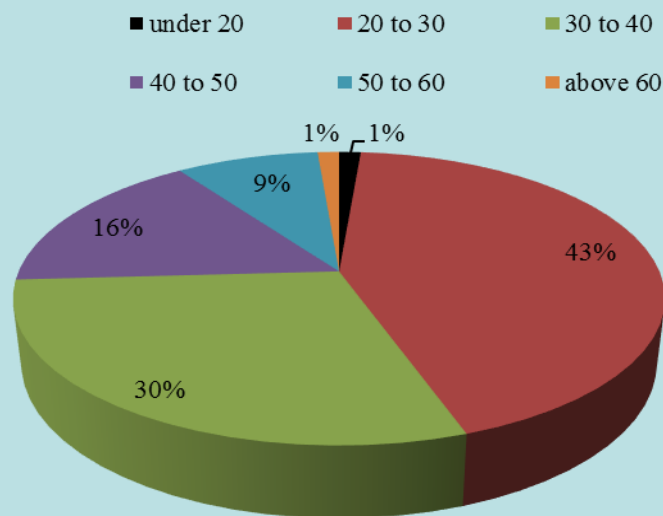


Figure 35: Seafarers age profile

- April 2014 a new system of seafarer recruitment and placement service has been introduced by DMA (Notification No.3/2013) in accordance with Myanmar Merchant Shipping Act, Section 24/25/26. This is aligned to the ILO Maritime Labour Convention (MLC).
- According to the new system the local crewing company/agency is registered and licensed (RPS / Recruitment and Placement Service license) at the DMA. The DMA applies a procedure for the issuing and validation of the RPS license aligned to the MLC requirements and guidelines.
- This alignment to international standards was required since the ILO MLC implementation (2013) and it secures international job opportunities for Myanmar seafarers.
- 161 crewing companies are registered at the DMA. The table shows the number and size of companies/agencies in terms of seafarers deployed. It shows that about 50% of the companies are small size deploying less than 50 seafarers.
- The second table shows the top 10 crewing companies. The total number of these ten companies account for about 38% of the total onboard seafarers.
- Opportunities exist for foreign companies to start a recruitment company in Myanmar.

No.	Onboard seafarers	Number of companies
1	N>500	10
2	300<n<500	13
3	200 <n <300	13
4	100<n<200	21
5	50<n<100	19
6	<50	80
	Total	161

Table 17: Number and size of crewing companies

No	Name of SRPS Co	Onboard
1	UNITEAM MARINE	2430
2	JADEORIENTAL SHIP MANAGEMENT	1040
3	MULTIGATE SERVICES (MYANMAR)	840
4	DRAGON JEWEL	740
5	LIZSTAR SHIPPING	700
6	SEA WIND MARITIME	615
7	MTM MARITIME CENTRE	615
8	SAMHO SHIPPING	600
9	SAINT JOHNS SHIP MANAGEMENT	540
10	ARIES MARINE AGENCY	535

Table 18: Top 10 crewing companies (Dec 2014)

Source: DMA Seafarers Division

Myanmar Mercantile Marine College (MMMC).

- Educates officers at diploma level (Dutch MBO) (see table 19)
- Annual intake: 160 students – 80 for Engine and 80 for Deck
- Teacher/trainer shortage is experienced. The shortage is partly resolved by allowing part time jobs. Due to this problem less than half of the planned courses are actually implemented. This means that MMMC facilities are not fully utilized.



MMMC - Nautical Studies

2 years	College
	> Diploma Nautical Studies
	18 months sea service as cadet, incl training record book
	Approved training record book
	Written + oral + practical navigation examination.
	> Officer in charge of navigational watch (Operational level STCW II/1)
	1 yr sea services as officer of navigation watch
6 months	Refresher Course
	Written + oral examination
	> Chief Mate unlimited (Management Level STCW II/2)
	3 yrs sea services as officer in charge of navigation watch
	or 2 yrs incl. 1 yr as Chief Mate
3 months	Refresher Course
	Oral examination
	> Master unlimited (Management Level STCW II/2)

MMMC - Marine Engineer

2 years	College
	> Diploma Maritime Technology
22 weeks	Workshop skills training
	9 months sea service as cadet, incl training record book
	Approved training record book
	Written + oral examination
	> Officer in charge of engineering watch (Operational level STCW III/1)
	12 months sea services as officer of charge of engineering watch (>3000kw)
32 weeks	Refresher Course
	Written + oral examination.
	> Marine Engineer Class 2 (Management Level STCW III/2)
	12 months sea services as officer of charge of engineering watch (>3000kw)
	or 24 months sea services as officer of charge of engineering watch (>750kw)
13 weeks	Refresher Course
	Oral examination
	> Marine Engineer Class 1 (Management Level STCW III/2)

Table 19: Programs at MMMC

Next to marine education MMU and MMMC run STCW standards trainings mandatory for STCW Certificates (Certificates of Competence / CoC) independently or jointly with private training centres.

Myanmar Maritime University (MMU)

- In 2002, in order to support the maritime industry rather than seamanship only, Myanmar Maritime University (MMU) was established, covering all aspects of maritime education (see table 20). It offers a wide range of degrees in nautical science, maritime engineering and post-graduate degree programs in shipping and port management. Master degrees in Marine Engineering, Port and Harbor Engineering, and River and Coastal Engineering have been initiated in recent years.
- At MMU there are 8 trainers at the Nautical Studies Course despite the need for 26. The teacher/trainer shortage is solved by allowing part time jobs.
- MMU is getting a good reputation as it has created various job opportunities in the regional maritime industry. Many graduates of MMU have worked in Singaporean and Vietnamese shipyards, and seafarers are recruited by Korean, Japanese and other
- MMU annual intake: 300 to 450 students. Number of graduates from MMU reached 2542 in 2015, and 343 Post-graduates of shipping and port management diplomas.
- As only Nautical Science, Marine Engineering, Marine Mechanical, and Marine Electrical Systems and Electronics graduates are conditioned to join seamanship, seafarer supply from MMU is around 200 per year.

Program	Bachelor's	Type	Duration
Naval Architecture	B.E.	Full Time	6 Years
Marine Engineering	B.E.	Full Time	6 Years
Marine Mechanical Engineering	B.E.	Full Time	6 Years
Port and Harbor Engineering	B.E.	Full Time	6 Years
River and Coastal Engineering	B.E.	Full Time	6 Years
Marine Electrical Systems and Electronics	B.E.	Full Time	6 Years
Nautical Science	B.Sc. (Hons.)	Full Time	5 Years

Table 20: Programs at MMU

MMU nautical, marine engineering and marine electrical systems and electronics also undergo DMA registration and examination in accordance to the STCW standards (STCW chapters II and chapter III).

- Since 2010, research and development programs have been set up with other international institutions, with increased participation from the industry.
- Delft University of Technology and MMU already work together for the 4 year project of Capacity Development for Integrated Water Resource Management. It covers capacity building, syllabus review and revisions, training equipment support. Technology support started in August 2015.
- Other research projects include:
 - Ship Model Test - supported by MyanShwePyi Tractors Co.Ltd.
 - Ship Model for 21m T201 - supported by Amber Star General Trading Co.Ltd.
 - Future Trends of HR Developments in Myanmar Shipping Industry - supported by KMI.
 - Preliminary Inspection for Building Fisheries Statistics in Myanmar - supported by KMI.
 - Preliminary Survey of Needs of Pond Fish Production in Yangon Region - supported by KMI.
 - A Project for the Feasibility of Building the Seafarer's Training and Education Centre, and Development of Master Plan for the Seafarer's Training Policy in the Republic of the Union of Myanmar - supported by KOICA & KMOU.
 - Development and production of next generation remote cruising ROV and its support - supported by KOICA & KMOU.
 - Study of trim dependence for ship performance in the actual sea conditions by computational fluid dynamics simulation.
- MMU has established ties with international universities from Thailand, Japan, Korea, China, Singapore and Sweden etc. One of the aims is to train the trainers of MMU that would enhance the quality of the trainers.
- For creating the job opportunities of MMU graduates, and to fill in the need of on board training, a number of contract with shipping lines, recruitment companies and other maritime related companies such as offshore companies have been concluded. The contracts are not only creating job opportunities but also a solution for on board training, a basic requirement for cadets.
- Marine Science (degree, master and doctorate) can be studied at the departments of Patheingyi University, Myeik University and Mawlamyine University.

- Since 2011 private training centres have been opened. Training centres can be established upon the approval of DMA.
- Currently over 20 Private Training Centres offer various maritime courses, including mandatory STCW trainings as required for STCW Certificates (Certificates of Competence / COC and Certificates of Proficiency / COP).
- In order to meet the requirement of the IMO STCW Manila Amendments, DMA demands Myanmar officers to have their COCs revalidated by 31 December 2016. For this requirement the refresher courses are being delivered and facilitated by the government maritime institutions as well as by the private training centres.

Challenges

- The lack of training berths for cadets to complete the required seetime training period restricts the number of students finishing their maritime seafarer education (Standards of Training, Certification and Watchkeeping / STCW)
- The shortage of competent maritime teachers/trainers is a challenge for both the college and the university. The teacher/trainer shortage is partly resolved by allowing part time jobs in both education institutions
- Lack of funding prevents upgrading of facilities and equipment at the college and university
- The proficiency of the English language is generally low. This problem exacerbated since the policy change in 2013 where no longer the Basic English Skill Test (BEST) by DMA is required
- The implementation of procedures for recruitment and placement service licenses and the global implementation of the ILO Maritime Labour Convention (MLC) has improved and shall further improve the general situation, but has not completely ruled out malpractices by unscrupulous crewing agencies.

Opportunities

- Since maritime training and education is included in the government development strategy, support by government has increased to facilitate investments in training equipment and promote cooperation among industry and training institutions
- Opportunities are prevalent in engineering, maritime related and seafaring education and training. Cooperation and support of industry and affiliated maritime institutions in the research and development of marine engineering, shipping and port, and seafaring can be extended
- The Myanmar seafarers market is a niche market which has the potential to be developed into a global seafarers source. Seafarer jobs are historically considered attractive in Myanmar and have a good reputation
- Opportunities exist supporting the infrastructure to align to international requirements and to implement stronger procedures and systems at the DMA (for example, the implementation of the new "Seafarers Identification and Record Books" replacing the old Continuous Discharge Certificates, and the implementation of database to hold this data).

- The political situation has restricted the development of the education and training infrastructure in Myanmar. Where this gap poses a risk to the quality of students and workers, it at the same time is an opportunity to embark on developments improving and lifting the training standards.
- Investments and cooperation in education and training is expected to be fruitful because Myanmar always had a marine infrastructure with a substantial maritime workforce. Investments can be extended to maritime related areas such as engineering, shipping, ports and ocean science, since these are relatively unexplored.
- The Myanmar seafarers market has the potential to be developed into a sourcing country as an alternative (and benchmark) to large labour supply countries such as the Philippines and China. Myanmar can help solving the global shortage of qualified seafarers and engineers (including electrical engineers) in specific. Until now this market has not been fully developed due to political restrictions. Uniteam (Cyprus) recognized the potential of crew from the Myanmar and actively supports training of seafarers.
- For areas where knowhow is lacking, capacity building is the good way to start up business. Two Dutch PhD's are co-financed by Shell. Damen and Royal HaskoningDHV provide scholarships to support education and people.



8. Financial Climate



- The Central Bank of Myanmar (CBM) is the autonomous regulator and supervisor of financial institutions since the new Central Bank of Myanmar Law was enacted in July, 2013. The financial system comprises of banks and other financial institutions. In 2014 the Ministry of Finance formed the Financial Regulatory Department. It regulates both the microfinance and insurance industries.
- The banks are the core of the financial system. The non-bank financial sector is relatively small and financial markets and traded assets are even less developed than in most low income countries. Currently, the state-owned insurance company is the most active one, together with twelve private licenses reached out in 2013. Together, state-owned banks in Myanmar hold 30% of assets in the banking system and 25% of all commercial banks' branches in the country. Each of the state-owned banks has evolved from its initial specific function, such as to fund foreign trade, agriculture, investment, trade, etc.
- The state-owned banks currently operate as departments of the Ministry of Finance and Revenue except for the Myanmar Agriculture and Development Bank under the Ministry of Agriculture. These institutions face some challenges that prevent them from fulfilling their developmental objectives satisfactorily.
- One of the problems for business is foreign payments, incoming as well as outgoing. Most companies active in Myanmar reinvest locally. Much trade is being done through Singapore. Project finance sources are ADB, World Bank and bilateral aid programs.
- Chinese dominates the investments because of strategic considerations (neighbouring country, logistics, energy). China, Korea and Japan bring all-in package solutions, the Dutch approach is more fragmented. However: there is a growing resistance against Chinese involvement: new local NGOs start to protest, e.g. hydro power dam.
- Under the 2012 Foreign Investment Law (FIL), there are three means to carry out an investment:
 - 100% foreign capital.
 - Joint Venture with a citizen or with the relevant government department and organization.
 - Any system contained in the contract which approved by both parties.
- Economic activities that are open to foreign investment not only depend on the FIL law but also on the notifications of MIC. On the MIC Notification No 49/2014 dated 14 August 2014 provide the following information.
 - Types of economic activities which are not allowed to be carried out by foreign investors (11 types).
 - Types of economic activities to be allowed only by joint venture with Myanmar citizens (30 types).
 - Types of economic activities to be allowed in accordance with the particular conditions specifically prescribed such as:
 - activities allowed only with the recommendations of the relevant ministry.
 - activities allowed only with the approval of others (i.e meeting some standards and requirements such as meeting Good Animal Husbandry Practice).
 - activities requiring environment impact assessment reports.

- Less than 20 percent of the population has access to formal financial services, and most people use informal trading ways. Two state owned banks, Myanmar Agricultural Development Bank and Myanmar Economic Bank are engaged in financial inclusion, but most of the commercial banks focus on the upper segment of the market.
- Mobile banking could play a major role for Myanmar to leapfrog financial inclusion. Mobile phone penetration is around 11 percent. Therefore, increasing access to finance is a major goal of the government and government has set the target of 75-80 percent of mobile coverage by 2016.
- Challenging productive credit and related financial services to farmers is of critical importance. Increased agricultural productivity could enhance food security. Increased food production will safeguard the country's limited foreign exchange reserves and improved development opportunities for micro small and medium enterprises (MSMEs). Currently, most MSMEs have to utilize expensive unregulated credit, their business are not covered by insurance, utilize unregulated payment services.
- Therefore, the improvement of financial intermediation through regulated institutions such as banks, MFIs, insurers, cooperatives, licensed pawnshops is quite important. Priority opportunities for the Government of Myanmar to increase access to financial services are:
 - increase the supply and availability of electronic payments – through mobile payments platforms and electronic payment networks to be developed by commercial banks;
 - extend the availability of account- based savings options and to develop bank based deposits – MEB can strengthen its role as saving mobilizes in both urban and rural;
 - improve the quantity, terms and risk profile of agricultural input Credit – in this point, MADB will play a leading role, but there is also opportunity for agricultural input providers and Microfinance Institutions;
 - Increase the availability of unsecured credit such as lending providers, Micro finance Institutions and Cooperatives are permitted to extend loans without collateral;
 - to relax the collateral requirement for personal loans once a credit bureau is in place;
 - to grow the insurance product portfolio to meet the risk mitigation needs;
 - to develop insurance products to provide security for credit expansion and protection of customers, particularly for agriculture;
- Since 2011, some developments in the banking sector could be seen, like installing ATMs machines, establishing Myanmar Payment Union, and granting licenses to Foreign Banks.

- Access to finance is limited in Myanmar and the financial system is at the early stages of development particularly in comparison with neighboring countries. Credit to economy as a percentage of GDP is only 21.5%, while the deposit to GDP was 38 % in March 2015. A factor in Myanmar's low deposits is Myanmar's previous regulatory limits on bank branching and ATMs. Now a number of restrictive measures have been lifted, there has been a rapid growth of the banking sector since 2011.
- The four state owned banks dominate the financial sector in many areas. The largest bank, Myanmar Economic Bank (MEB), comprises most of this activity. This dynamic has been changing over the last three years and the share of state bank lending to the private sector has declined due to the rapid growth of private bank activities. MEB has 341 branches, MADB 207, and the remaining 23 private banks have in total 1079 branches, largely clustered in urban areas and Yangon. MEB also provides many central banking and fiscal functions aside from its commercial banking role.
- The financial sector is expanding along with the government reform agenda and financial sector liberalization plan initiated by the Central Bank of Myanmar. The private banks generally focus on small and medium-sized enterprises (SMEs). 90% of total loans are to SMEs representing close to 30% of the value of the loan portfolio. Competition for the stronger SMEs is strong, but only a small segment of the SME sector is being served by banks.
- There are only a handful of simple, basic banking services. The amount of credit to the private sector in March 2015 was 10116 Kyat billion. Sectorial loan disbursed by both state and private banks were 31 % in Trade, 19% in Agriculture, 12% in construction, 13% for Manufacturing 10% in Services and the rest 13% in General. The credit to the trade sector was mainly used for import of capital and intermediate goods.
- The interest rates ceiling is set by the Central Bank of Myanmar. Both lending and deposit rates are capped and linked to the Central Bank discount rate, which is currently 10 percent per year. The deposit rates have been liberalized within a fixed corridor ranging from 8 % p.a to 10 % p.a, meanwhile lending rate is 13 percent per annum. Furthermore, loans cannot be extended for past one year and or rolled over more than three times, effectively preventing loans for capital investments.
- In terms of the non-bank financial sector, there is no real securities market (although securities are in fact issued by companies and banks, but they are not listed on an exchange and in most cases they are not traded).
- The government of Myanmar has issued limited government debt, which is largely bought and held by banks. On behalf of Government, the Central bank of Myanmar has issued two years, three years and five years Treasury bond and mostly, the private banks buy the Treasury bond. The interest rate for treasury bonds are 8.75, 9.0, 9.5 percent per annum for two years, three years and five years respectively. The government has also issued 92 days Treasury bill and starting from January 2015, Treasury bill has been sold by Auction mechanism. Although a number of private insurance companies have been licensed recently, these are small in scale and outreach with agricultural sector activities such as flood, crop or livestock insurance.

- According to the financial sector liberalization roadmap, the Central Bank has granted preliminary approval to nine foreign banks to establish branches in Myanmar on 1 October 2014. Up to August 2015, eight foreign banks branches have been granted the final license to do banking business. The Industrial and Commercial Bank of China, the Oversea-Chinese Banking Corporation (OCBC) and Singapore's United Overseas Bank (UOB) were awarded the licenses along with banks from Thailand and Japan.
- In order to resume its activities in Myanmar, the Asian Development Bank (ADB) has done initial assessments on the economy and key sectors, provisions of technical assistance, and development of an interim country partnership strategy for 2012-2014, which was extended into 2016. Resumed activities are lending operations, technical assistance grants for advisory services, capacity building, and project preparation.
- Since reengaging with Myanmar, ADB has prepared comprehensive economic and sector work, while establishing dialogue with the government, civil society organizations, the private sector, and other development partners. ADB built an operational program and prepared an [interim country partnership strategy, 2012-2014 for Myanmar](#), which has been extended to 2016. Lending operations have resumed, and technical assistance grants have been implemented for advisory services, capacity building, and project preparation.
- ADB's assistance has been focused on supporting public sector management. In 2014, the total assistance from ADB (approved loans, grants, technical assistance reached to \$246.4 million. However, ADB's activities are less focused on maritime sector of the country.
- In April 2014, ADB established its Myanmar Resident Mission, with offices in Nay Pyi Taw and Yangon. The ADB granted \$512m (£325m), while the World Bank approved a \$440m credit. The loans were made possible after Myanmar cleared overdue arrears to the two banks with the aid of Japan. The ADB's loan to Myanmar is the first such credit it has approved in almost 30 years.
- Last year, the World Bank started lending to Myanmar after a gap of 25 years.
- The Paris Club of creditor nations has agreed to cancel almost half of its debts to member countries. The World Bank and ADB have resumed lending to Myanmar after sanctions against the country were lifted. It has also agreed to reschedule the payment of the remaining loan over a period of 15 years.
- Norway, which is a member of the club, has cancelled all of its claims amounting to \$534m. Meanwhile, another member Japan has committed to a cancellation of its arrears worth over \$3bn. the overall agreement with the club "results in a very favourable debt relief of nearly \$6bn or over 60% of total debt immediately in effect."
- The World Bank Group re-engaged with Myanmar in 2012, and made a \$1.2 million equity investment in Fullerton Finance (Myanmar) Company Limited. The investment is said to help the microfinance provider expand lending to smaller businesses and individual borrowers. Further, it is supporting Myanmar's central bank to develop at least one credit bureau by June 2016 and expand access to finance.

	Particulars	Permitted Enterprises			Existing Enterprises		
		No	Approved Amount	%	No.	Approved Amount	%
1	Oil and Gas	151	19,642	33.20	93	18,718	38.31
2	Power	9	19,372	32.75	8	13,341	27.30
3	Manufacturing	585	6,245	10.56	493	5,012	10.26
4	Transport and Communication	29	4,753	8.04	20	4,576	9.37
5	Mining	70	2,870	4.85	10	2,341	4.79
6	Real Estate	32	2,517	4.26	42	2,010	4.11
7	Tourism	58	2,270	3.84	20	1,736	3.55
8	Livestock & Fisheries	34	452	0.77	14	214	0.44
9	Agriculture	17	242	0.41	16	193	0.40
10	Industrial Estate	4	203	0.34	3	189	0.39
11	Construction	2	38	0.06	-	-	-
12	Other Services	42	546	0.92	40	529	1.08
	Total	1033	59,153	100.00	759	48,862	100.00

Table 21: Foreign Investment by Sector per 31/12/2015, million USD

Source: DICA

Sr. No.	Particulars	Permitted Enterprises			Existing Enterprises		
		No	Approved Amount	%	No.	Approved Amount	%
1	China	115	15,418	26.07	90	15274	31.26
2	Singapore	189	11,817	19.98	153	11480	23.50
3	Thailand	90	10,352	17.50	51	3217	6.58
4	Hong Kong	117	7,271	12.29	99	7176	14.69
5	U.K	82	4,058	6.86	48	3407	6.97
6	Republic of Korea	122	3,396	5.74	108	3324	6.80
7	Malaysia	52	1,662	2.81	25	1065	2.18
8	The Netherlands	13	981	1.66	10	747	1.53
9	India	22	730	1.24	21	726	1049
10	Viet Nam	10	692	1.17	10	692	1.42
11	Japan	83	609	1.03	72	506	1.04
12	France	4	541	0.92	3	538	1.10

Table 22: Foreign Investment by Country per 31/12/2015, million USD

Source: DICA

Foreign investment from the Netherlands is among the top ten- showing that a good business relationship have already been established in Myanmar.

- The World Bank (2016) Report on Doing Business in Myanmar has shown an improvement.
- The overall Doing Business Ranking has improved from 177 in 2015 to 167 in 2016.
- In terms of Distance to Frontier (DTF), 5.18 % points increased over last year.
- It supports the investors' confidence in Myanmar.






Topics	DB 2016 Rank	DB 2015 Rank	Change in Rank
Starting a business	160	189	29
Dealing with construction permit	74	84	 10
Getting electricity	148	154	 6
Registering property	145	145	 No Change
Getting credit	174	171	-3
Protecting minority investors	184	184	 No Change
Paying taxes	84	73	- 11
Trading across borders	140	140	 No Change
Enforcing Contracts	187	187	No Change
Resolving insolvency	162	162	No Change

Table 23: Business Ranking of Myanmar (The World Bank, 2016)

Notes:

- Starting a Business is reported to be easier thanks to eliminating the minimum capital requirement for local companies and streamlining incorporation procedures.
- Paying Taxes is remarked more costly and complicated for companies by increasing the rate paid by employers and ceiling for social security contributions, requiring additional documents for commercial tax returns and introducing quarterly preparation, filing and payment of corporate income tax. At the same time, Myanmar increased the rate of allowable depreciation.
- Getting Electricity: Obtaining a new electricity connection is made easier by reducing delays through fewer approvals.

- Myanmar Special Economic Zone (SEZ) Law was enacted on 23 January 2014. It provides incentives for export oriented industries. Incentives are in the form of:
 - Income tax exemptions and reliefs.
 - Exemptions and reliefs on import revenue.
 - Deduction of depreciation from profits etc.
- The country's first SEZ at Thilawa, near Yangon, is currently under construction – aided in part by Japanese investment. The Thai government has reaffirmed its commitment to the development of an SEZ in Dawei, after the contract was awarded to Thai-Italian developers, also backed with Japanese assistance. Tenders are being made for the creation of another in Kyaukphyu, Rakhine State, to complement newly-built infrastructure in the area including a controversial oil and gas pipeline to China which started operating at the beginning of the year.
- There is talk of other SEZs being built in Patheingyi, Ayeyarwady Regions, and Myawaddy, Kayah State. These are encouraging signs and, along with the enactment of the Foreign Investment Law in 2012 and the SEZ Law in 2014, show the government's continued appetite for promoting business and industrial growth in the country.
- SEZs in Kyaukphyu and Dawei offer doorstep access to the Indian Ocean and beyond, while an SEZ in Myawaddy offers the same to Thailand and many of Myanmar's ASEAN neighbours. SEZs in Myanmar should be built with sound attention towards the economic, social and environmental impact they would have. Not only is this important from a moral perspective, but guaranteeing safeguards on these issues would also do much to attract companies from countries with ethically-concerned consumers, particularly the EU and North America, and expand the potential number of companies looking to locate in Myanmar.
- The Thilawa and Dawei projects have been subject to extended delays because of poor infrastructure and access difficulties, and a lack of funding. There is also apprehension whether electricity provision would be enough, and current telecommunications and road links must be upgraded considerably before the SEZ is active. Once these SEZs are operational, it is crucial for policy makers to study their effects closely.
- Strong laws and regulations should promote business growth but also ensure that the resulting benefits are not entirely appropriated elsewhere. Not only would this lead to fertile business environments, but also display a willingness by the government to engage further with businesses and encourage investment from both foreign and local companies.

Challenges

- Inflation may rise higher in the coming year and it is expected that the current account deficit may widen.
- A slowdown in China's economy growth would have a negative impact on Myanmar (IMF, 2015).
- The Central Bank of Myanmar's regulatory and supervisory capacity is relatively weak (IMF, 2015).
- Economy is showing signs of overheating (IMF, 2015).

Opportunities

- Myanmar has become an increasingly active participant in the regional and international integration- for instance, in the Greater Mekong Subregion Economic Cooperation Program and the Association of Southeast Asian Nations (ASEAN).
- The opening of banking sector will lead to a more sounding financial system.
- The Operation of the Thilawa Special Economic Zone (SEZ) will provide an initial platform for Myanmar Export-Growth Strategy. (IMF, 2015).
- The newly elected government and peace process may result in higher FDI inflows.
- Increased coordinating efforts by development partners- ADB, the World Bank , the UNDP, the IMF etc.

Conclusion

- The Myanmar financial climate is improving by and large, with the coordinated efforts of the Central Bank, foreign and international financial institutions. Reform measures are being taken in order to wake up the financial system. There is a need for project finance from banks and access to credit for private business. Longer term project finance is absent.
- Since 2011, installation of ATMs machine, the establishment of a payment union, and granting licenses to Foreign Banks have been witnessed. Nine Foreign bank branches have started the business mostly in 2015, The Bank of Tokyo-Mitsubishi UFJ, Ltd being the earliest bank that has started business in 22 April, 2015. Many other foreign banks, 48 in number as of 2/21/2016, just have representative offices.
- ADB, World Bank and several international development funds are active, making large scale infrastructure projects possible. In spite of this, the ambitious SEZ policy encounters difficulties in financial project partnerships.
- Foreign banks are still prohibited from engaging in a number of activities such as operation of retail-banking business, extension of any form of lending facility to local business. On later stages of liberalization, foreign banks will be permitted to incorporate 100% foreign owned subsidiaries and to open branches
- The overall banking system is still in its infancy and various reforms and liberalizations are to be kept on.



9. Conclusions



Indirect entrance strategy

Challenges when starting up business in Myanmar are certainly present. When starting up business in the country the entrepreneur can be confronted with political and cultural issues, and will have to deal with the remainders of the ancient military regime – although this is not perceived as problematic by all respondents. The country scores 147 out of 168 on the corruption perception indices (transparency.org), and there is no full-grown banking system. Energy and transport issues, will have to be solved, there is a less transparent common law system, and the absence of qualified labour. These soft trade barriers cause most newcomers to use an indirect entrance strategy: starting from Singapore, using a local agent, or teaming up with already present Western companies. In any case, it is recommend to find a reliable local agent, preferably one that already works with European suppliers.

Donot expect quick wins

Take time to get to know the market and to build up a local network. Business is mostly done in informal ways, which requires spending time at informal events or clubs where business meets. Also the maritime market will need time to adopt professional standards. The country is in transition and it will take time to mature.

Use the existing presence

Especially in the field of water management and engineering services, several large Dutch companies are already present. Try to use their experience whenever possible, and use the good name The Netherlands have built up as a nation in the field of water management. Other contacts can be found in the appendix, such as Netherlands Water Partnership, MER-Commissie in Utrecht, the Ministries of Infrastructure and the Environment and Foreign Affairs in The Hague, and the Dutch diplomatic representation in Yangon can support as well in finding your way. It is recommended to contact these organisations before entering the country. Access strategies can also be done as a subcontractor to Chinese, Korean, Japanese, Thai or Singaporean contractors who perform activities in the country.

Invest in capacity building

Given the lack of knowhow, capacity building is the best way to start up business. A longer term strategy can be to exchange, adopt or sponsor students or PhD's, and participate in capacity building programs. This way a local presence can be built up. This method is relatively cheap, but will take longer than other indirect entrance strategies.

Conclusion 1: development

The maritime sector in Myanmar is still at its early stages of development, and only a handful of Dutch maritime companies are active in the country. Triggered by the ongoing political and economic reforms, and given the abundant natural resources, Myanmar's economy is expected to find her way to growth after decades of suppression and stagnation. A sound investment environment is being pursued by governments and industry. Most of the ventures in the maritime sector are now open to international investments, creating new opportunities for Western entrepreneurs. Changes are being pursued and implemented throughout the economy, including in the maritime sector.

Conclusion 2: physical infrastructure

Approximately 70 percent of the roads are still unpaved, and the country is also in severe need of electrical power, which is essential for commercial and industrial development. Sea trade handles more than 80 percent of the overall trade. In spite of this, the Yangon ports are not able to cater vessels above 20,000 dwt. If the GDP maintains growth rates of 8% annually, Yangon Port cannot possibly handle the national requirements with existing capacity. Dredging of Yangon port is necessary and port development downstream and on the western side is vital. Deep sea ports and infrastructure are necessary to be implemented within one decade. The delta area is scooping and prone to flood, storm surges, coastal erosion, salt intrusion and in lack of action or countermeasures.

Conclusion 3: financial infrastructure

The financial system is still underdeveloped. Most offshore and international maritime transactions are being done through Singapore. According to Dutch sources, the only bank reaching out L/C's is DBS-bank from Singapore. Banks are still reluctant to engage in business within Myanmar. However, reforms are underway and the country seems to rapidly adjust to international financial standards and systems.

Conclusion 4: a small seagoing fleet

The Myanmar owned fleet consists of 109 merchant seagoing ships with a total of 346,205 GT (gross tonnage). It is composed of 45 bulk carriers, 12 containerships, 11 ferries, 5 tankers and 36 seagoing tugs and workboats. Average age is 27.6 years, average size 3,176 GT. The seagoing transport sector is minimal compared to other countries in the region, and the fleet is aging. The fleet will have to be upgraded in order to comply with international standards and make a true contribution to trade. New cabotage laws and regional co-operations could spark off investments in this field. The short sea fleet, passengers as well as cargo is below international standards.

Conclusion 5: offshore services

Offshore support services will move from Singapore up North to Myanmar and neighboring countries, as they will be closer to the newly developed offshore gas fields. New offshore supply bases will have to be established, which is a straightforward opportunity for Dutch companies playing in the slipstream of big Shell developments. Investors interested in setting up supply bases are needed urgently and the Myanmar government strongly encourages supply base development proposals.

Conclusion 6: reforms in inland shipping

State owned IWT is almost collapsed, making place for commercial ownership. This has triggered new entries by local owners, sailing substandard vessels and taking over shipyards and assets in the transition period. The inland ports and river infrastructure are obsolete, and intermodal transport concepts are to be introduced yet. Inland cruise shipping is strongly coming up, which may trigger the need for modern and safe designs suitable for chartering by Western tourist operators.

Conclusion 7: shipbuilding opportunities

The current shipbuilding and repair sector could profit from Western demonstration projects, e.g. building small series of relatively simple ships at one of the state yards and for own use in Myanmar waters. Dutch development financing, design and shipbuilding process management could add value to local economies and technology adaptation. Specific opportunities can be found in dredging, inland shipping, river cruisers, ferries, tugs, workboats and high speed craft for search and rescue operations.

Conclusion 8: capacity building

Education and training in maritime science and related maritime disciplines. Knowledge sharing is the key, starting with the exchange of personnel and the increased use of Myanmar seafarers by Dutch ship managers. There are efforts to align education and training programs for seafarers with STCW and higher maritime education. Dutch scholars are involved, but the missing agenda is to educate and train technical experts in shipbuilding, river & coastal engineering, hydrographic survey, offshore engineering, and marine system engineering, including electrical and electronics.

Conclusion 9: ports and terminals

Yangon port is under heavy pressure by city traffic congestion and it is very near to reach a state of saturation. Daily dredging is needed to secure access, especially in dry season. Deep sea port development is vital for the country development, including the development of supporting facilities. All river ports are primitive and short of piers, cranes and jetties. Fairway maintenance is not in the priority list and issues will come up in the near future when country development is progressing.

If The Netherlands envisage further commitment towards the maritime development of Myanmar, an integrated maritime agenda is needed. On the basis of this preliminary research, the integral approach should focus on a number of crossover themes:

1. Improved accessibility of ports and waterways
This is a vital factor in the further development of Myanmar. Already Dutch delta engineers and research institutions are active in Myanmar, working in the framework of an integral water management approach. The Netherlands dredging technologists should further capitalize on this, and work on an integrated maritime approach to be linked in with the water efforts performed so far.
2. The setup of offshore support centers
A central offshore support/supply base is demanded in the coastal area. But an excellent conceptual framework is needed in order to establish the base properly. Supply of parts to this base will have to be part of an efficient and integrated transport supply chain, allowing faster supply of parts and leading to lower inventory holding costs. Apart from this, Dutch companies can supply QHSE and certification programs to the offshore sector in Myanmar.
3. Fleet renewal and shipbuilding
The set up of industry and shipbuilding standards is necessary. After setting the standards, substandard and unclassed vessels will have to be replaced by modern tonnage. This will require knowledge exchange, the setup of ship design centers and shipyards, which could support the large demand for new vessels resulting from the fleet renewal program and new cabotage laws.
4. Capacity building and human capital
Myanmar has a large and young potential of seafarers, production staff and a sound educational basis. In order to open up this potential to Dutch companies, it is recommended to start a capacity building program specifically in the field of marine and offshore technology. Funding of this development program should be investigated, and where possible existing funds should be used.

The Netherlands could investigate how to strengthen their permanent local presence in Myanmar substantially on government, private and institutional levels. The local posts could increasingly play a role in helping set up business for Dutch companies, capacity development, problem shooting, project development and project finance.

It is recommended to set up a pilot project under the umbrella of the Maritime Hotspots project. Goal of this pilot could be to design an integrated maritime development program, and develop concrete projects consistent with the four priorities listed above.



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List of contacted persons

The Netherlands

Arcadis	Rob Steijn
Artsen zonder Grenzen	Gerbren Devres
Damen Shipyards	Gysbert Boersma, Gijs Busser
Datema Delfzijl	Gerald Idma
MER Commissie	Arend Kolhoff, Rob Verheem
HBH Europe	Jan Pieter Prins
IHC Merwede	Philip de Bats
NMT	Marjan Lacet
NWP	Lindsey Schwidder
OOS-International	Marcella Croes
Peterson / Control Union	Bas Hetterscheid
Port of Rotterdam	Willem Dedden
Royal Dutch Shell	Doug McKay
TU Delft	Marjan Kreijns
Worldbank	Daniel van Tuijl

Composition of the research team

Engr. Dr. Charlie Than, PhD
 Martin Bloem, MSc
 Henk de Vries
 Than Tun, BSc
 Dr.Elly Win, PhD
 Dr.Swe Swe Zin, PhD
 Tommy Than, BSc
 Aung Wai Phyo, BE(NA)
 Aye Chan Ko, BE(NA)
 Tun Eaindra Kyaw, BE(NA)
 Khant Htet Mg, BE (NA)

Myanmar

U Tin Soe,	Managing Director, Myanma Shipyard Executive Director (Construction), Myanma Shipyard-Dong-A JV Co.Ltd
U Zaw Nyunt	Executive Director (Planning), Myanma Shipyard-Dong-A JV Co.Ltd
U Thein Lwin	Executive Director (BOD member), Myanma Shipyard-Dong-A JV Co.Ltd
U Kyaw Min Oo	General Manager(planning), Myanma Shipyard-Dong-A JV Co.Ltd
U Kyaw Kyaw	General Manager, Myanma Shipyard-Dong-A JV Co.Ltd
U Khin Zaw	Deputy General Manager, Myanma Shipyard-Dong-A JV Co.Ltd
U Win Tint	General Manager, Myanma Port Authority
U Ni Aung	Head of Department, Myanmar Mercantile Marine College
U Zaw Lwin Oo	Myanmar Maritime University
U Aung Thu	Director General, Department of Marine Administration
U Maung Maung Oo	Director, Shipping Division, DMA
U Zaw Myint Thein	Assistant Director, DMA
U Tun Win	General Manager, Myanma Five Star Line
U Zaw Myint	Deputy General Manager, Myanma Five Star Line
U Aung Htoo	Deputy Director, Department of Fisheries
U Thet Naing	