



社会经济研究中心
**SOCIO-ECONOMIC
RESEARCH CENTRE**

Part 1

A Critical Look of The Strait of Malacca - Challenges, Pitfalls and Opportunities

Statement of objectives

- The Strait of Malacca is strategically located in Asia as the world's most important sea lanes, linking the shipping from the Indian Ocean to the South China Sea, and also facilitates cross-straits trade and labour movements between the East and West.
- With rising global trade and maritime demand, along with the big economic rise of China, the Strait of Malacca has gained more prominence not only as the vital waterway but also for geo-strategic and security assurance.
- The question arises whether the Strait of Malacca has been fully realized, whereas there are alternatives sea routes that could complement Straits of Malacca.
- The objectives of this study are to review the current landscape of maritime and examine whether or not new initiatives to open up other sea lanes across Southeast Asia are an alternative or viable supplement to the Strait of Malacca as strategic sea lanes and straits to the world and Southeast Asia in particular.

Scope of study

- **Section 1:** An overview of global trade and maritime along the Strait of Malacca
- **Section 2:** Strategic interests of Straits of Malacca
- **Section 3:** Other alternative routes: Complementary or threat to Straits of Malacca
- **Section 4:** Conclusion

Section 1

An overview of global trade and maritime along the Strait of Malacca



Impact of globalization on maritime activities

- The decades of globalization have altered the flows of international trade of goods and services, and the modes of maritime transport.
- Robust economic growth in the recent past prior to 2008-09 Global Financial Crisis, freer trade liberalization and market access, facilitated by the proliferation of bilateral and multilateral free trade agreements and the game-changing technology and information systems have spurred the growth of international trade, both in terms of volume and value, as well as the changes in its structure and in main exports-imports' routes.
- Global goods movement and maritime shipping is a critical element in the global freight transportation system.
- In the complexity of global trade web, the competing factors have been time, cost, and reliability of delivery. Hence, the strengthening of global transportation services are needed and economically justified if consumer demand is great enough.
- It is, therefore, requires immense investments and development in ports and logistics infrastructure to meet the future demand of goods movement as international and interregional trades continue to expand.

Impact of globalization on maritime activities

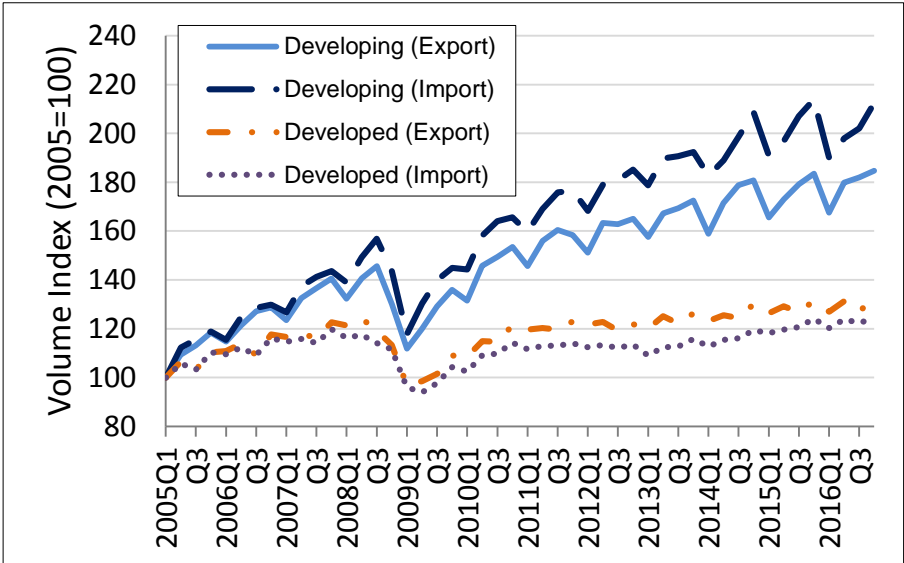
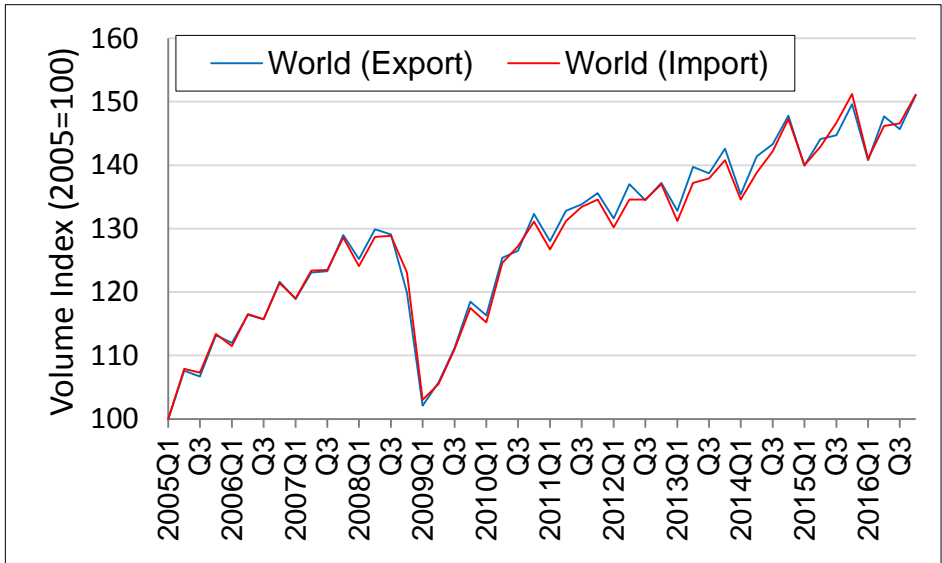
- Malaysia's trade and services growth also benefitted from the flourishing of bilateral and multilateral trade agreements: Seven bilateral free trade agreements (FTAs) with Australia, Chile, India, New Zealand, Pakistan, Turkey and Japan and six regional FTAs (ACFTA, AKTA, AJCEP, AANZFTA, AIFTA and ATIGA) ¹
- China's Belt and Road initiative and the future materialization of Regional Comprehensive Economic Cooperation (RCEP) not only spur greater demand for seaborne logistics but will have implications for existing ports of ASEAN.
- Given its strategic geographical proximity to the main route through the Strait of Malacca, Malaysia reaps opportunities in international maritime market. Its prominent container terminals (Port Klang and Port of Tanjung Pelepas) are well positioned among the world top 20 ports in terms of cargo volume handled.
- Malaysia had invested heavily in ports infrastructure and ports' capacity expansion projects in anticipation of increasing container volumes. The annual average growth of throughputs in Malaysia's container ports increased more than six folds since 1999.
- Within ASEAN, Malaysia's ports are the second well-connected port to global shipping networks as reflected in a sharp improvement of its linear shipping connectivity index (LCSI) to 106.79 in 2016 from 62.83 in 2004.

Note: 1. ACFTA= ASEAN-China Free Trade Agreement, AKFTA= ASEAN-Korea Free Trade Agreement, AJCEP= ASEAN-Japan Comprehensive Economic Partnership, AANZFTA= ASEAN, Australia and New Zealand Free Trade Area, AIFTA= ASEAN-India Free Trade Agreement, ATIGA = ASEAN Trade in Goods Agreement

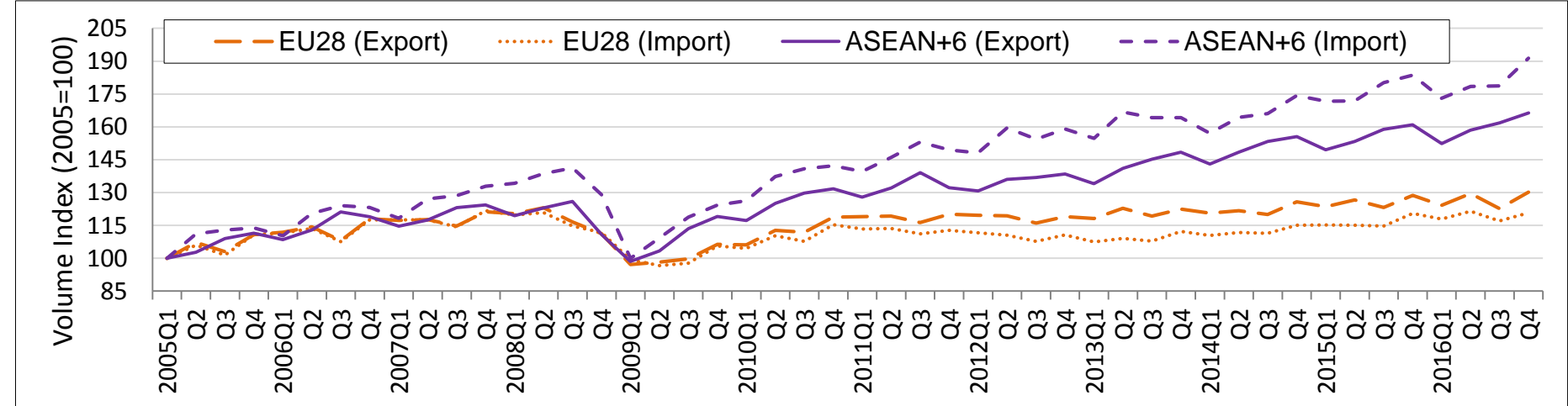
World merchandise trade shows a generally rising trend

With the exception of 2008-09 GFC, world export and import volume were generally on uptrend

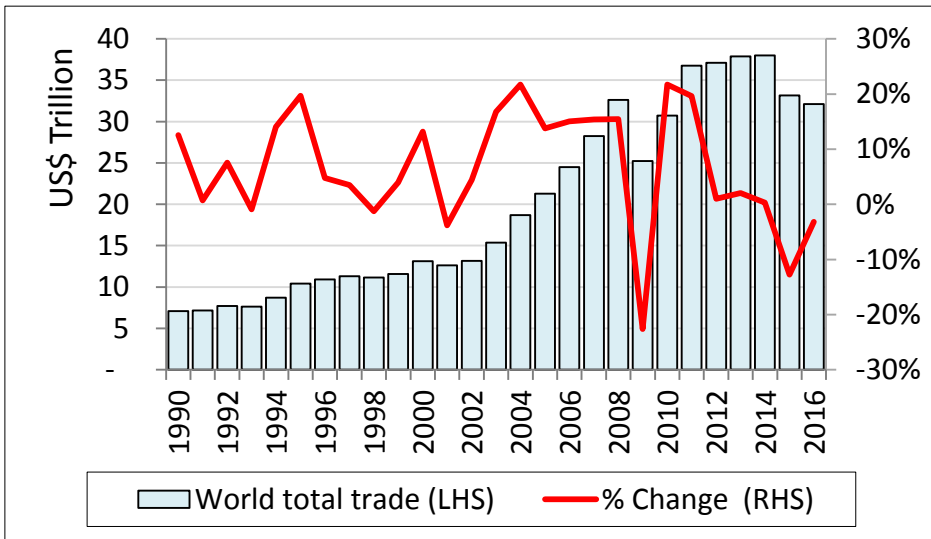
Trade volume in developing economies were higher than that of developed economies



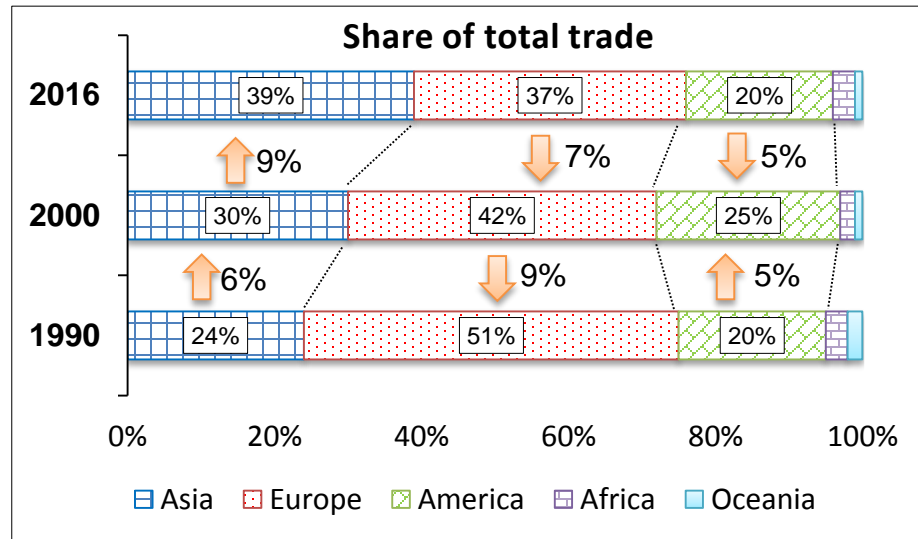
Post 2008-09 GFC, ASEAN six's exports and imports showed significant increases in trade volume. The combined trade volume was much larger than that of EU



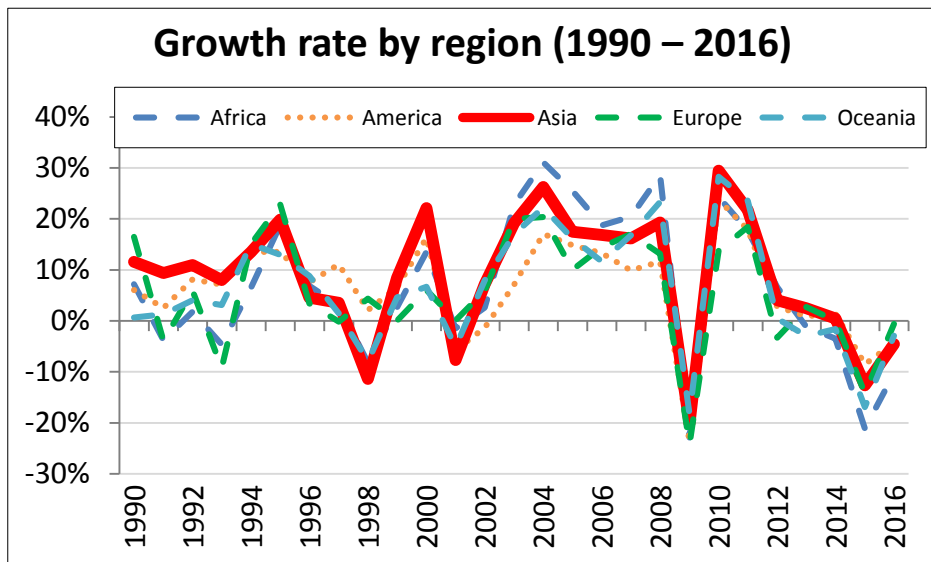
World trade increased by 5.7% pa from US\$7.1 trillion to US\$32.1 trillion during 1990-2016



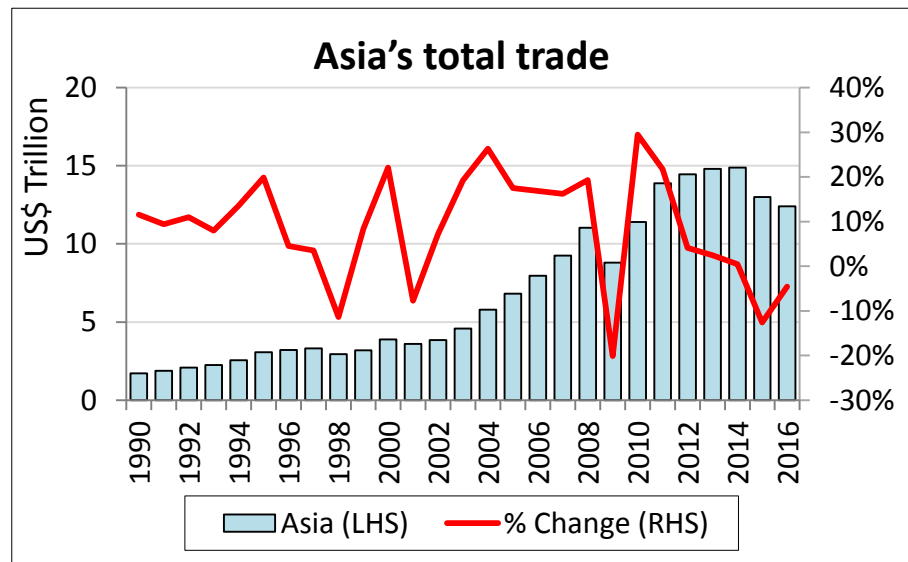
In 2016, Asia captured nearly 40% of world total trade compared to 24% in 1990 and 30% in 2000.



Regional trade growth perspectives

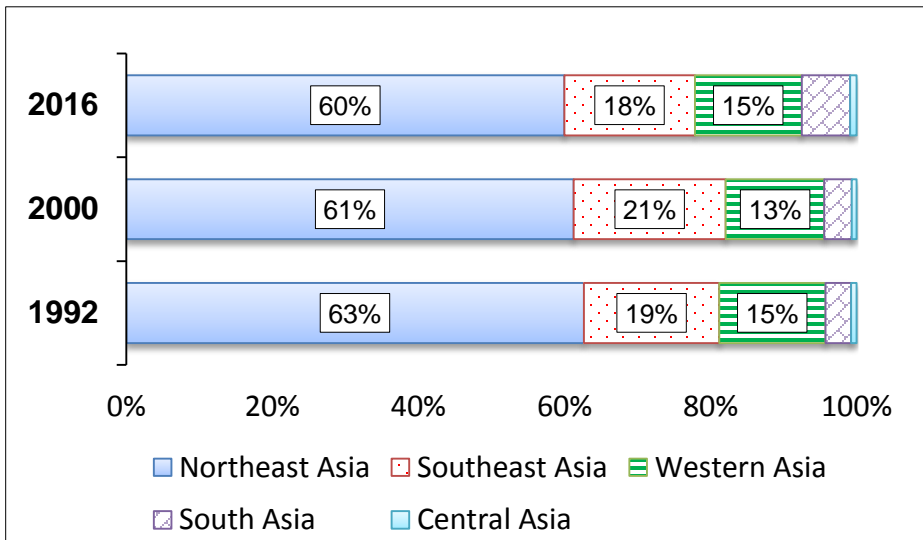


In 2016, Asia generated US\$13 trillion of total trade.

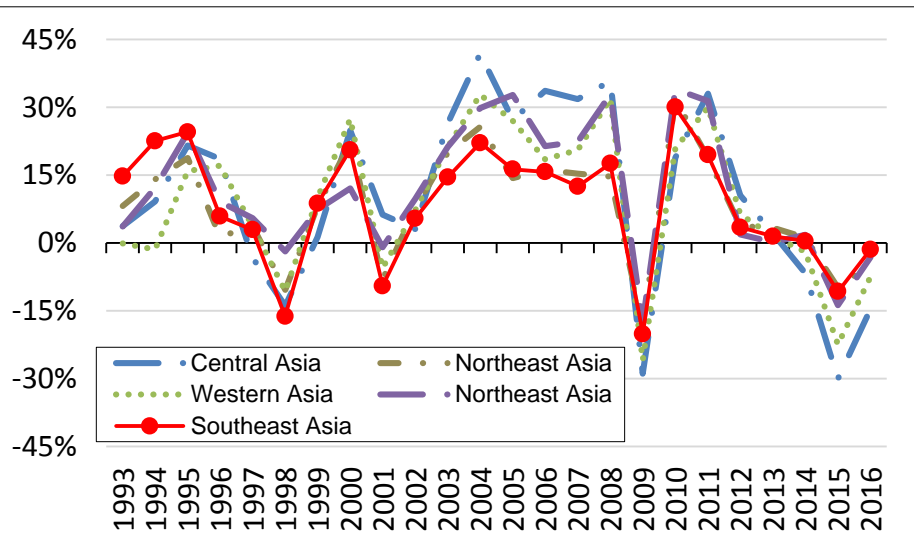


Snapshot of Asia's trade by region

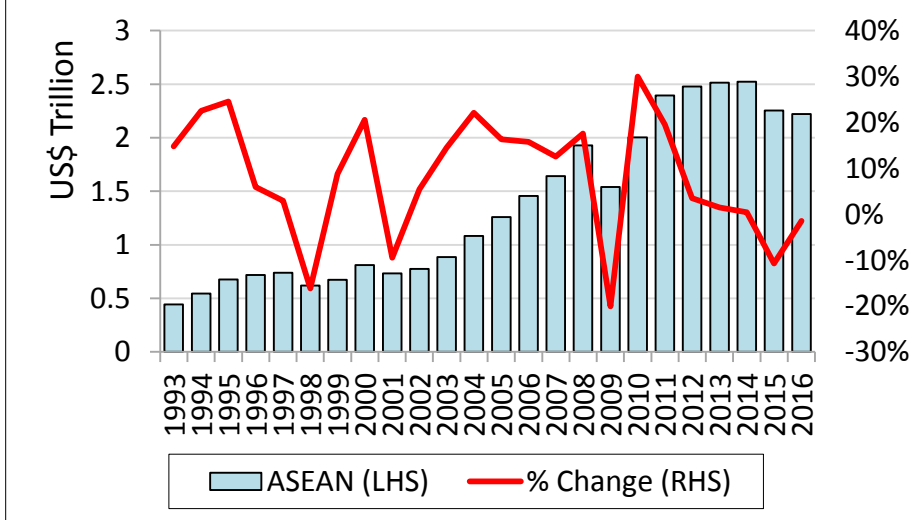
Asia's total trade by region in 2016: East Asia (60%), Southeast Asia (18%) and Western Asia (15%)



Southeast Asia showed a strong rebound in trade growth in 2016



ASEAN's total trade increased 3.4 times, from US\$0.4 trillion in 1993 to US\$2.2 trillion in 2016



Asia's top six trading blocks/nations (2016)

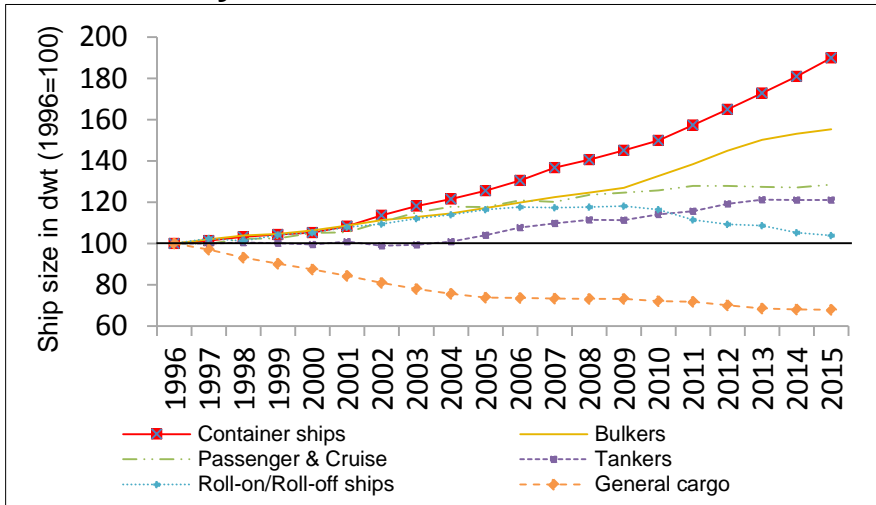
	US\$ billion	Share, %
China	3,685	29.7
ASEAN	2,220	17.8
Japan	1,252	10.1
GCC	1,239	9.9
Hong Kong	1,064	8.6
Korea	0.901	7.3

Note: Gulf Cooperation Council (GCC) = Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE

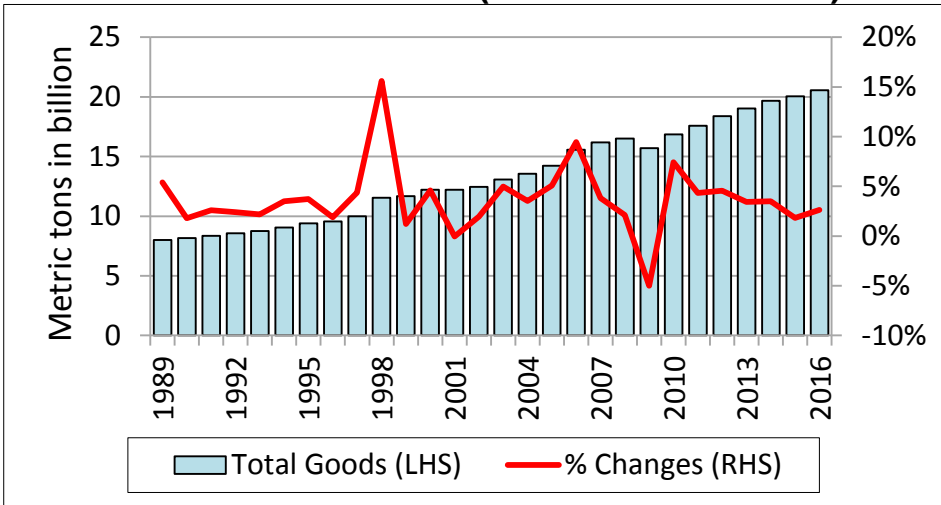


Shipping and movement of goods depict a change in pattern

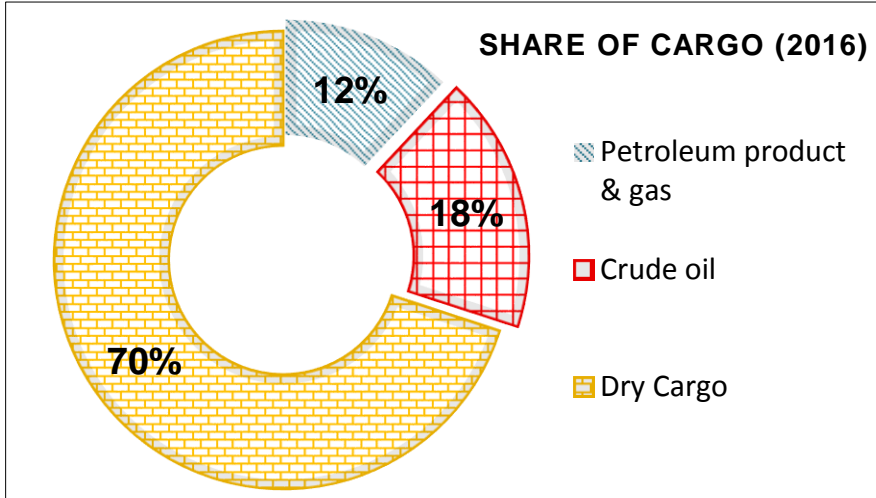
Size of container ships and bulkers expanded substantially in 1996-2015.



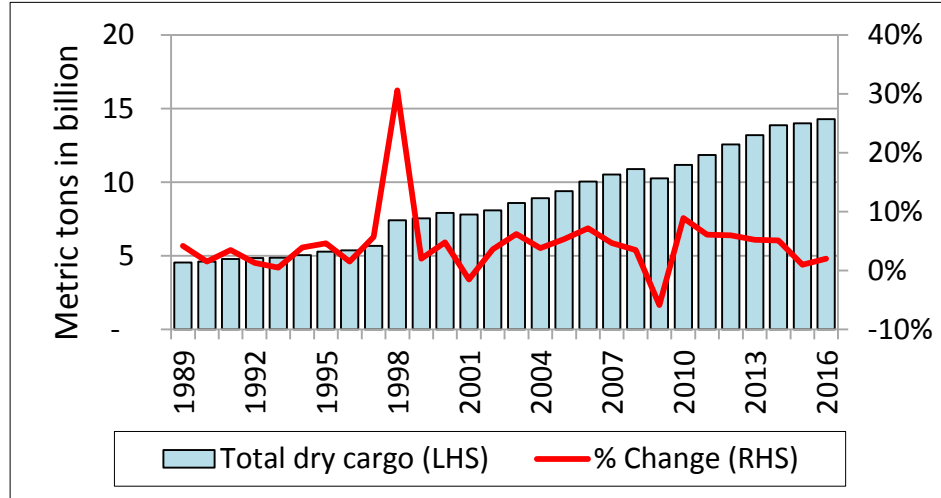
World seaborne trade surged 3.4% pa to 20.5 billion metric tons in 2016 (8 billion MT in 1989).



Dry cargo accounted for 70% of sea borne trade in 2016.

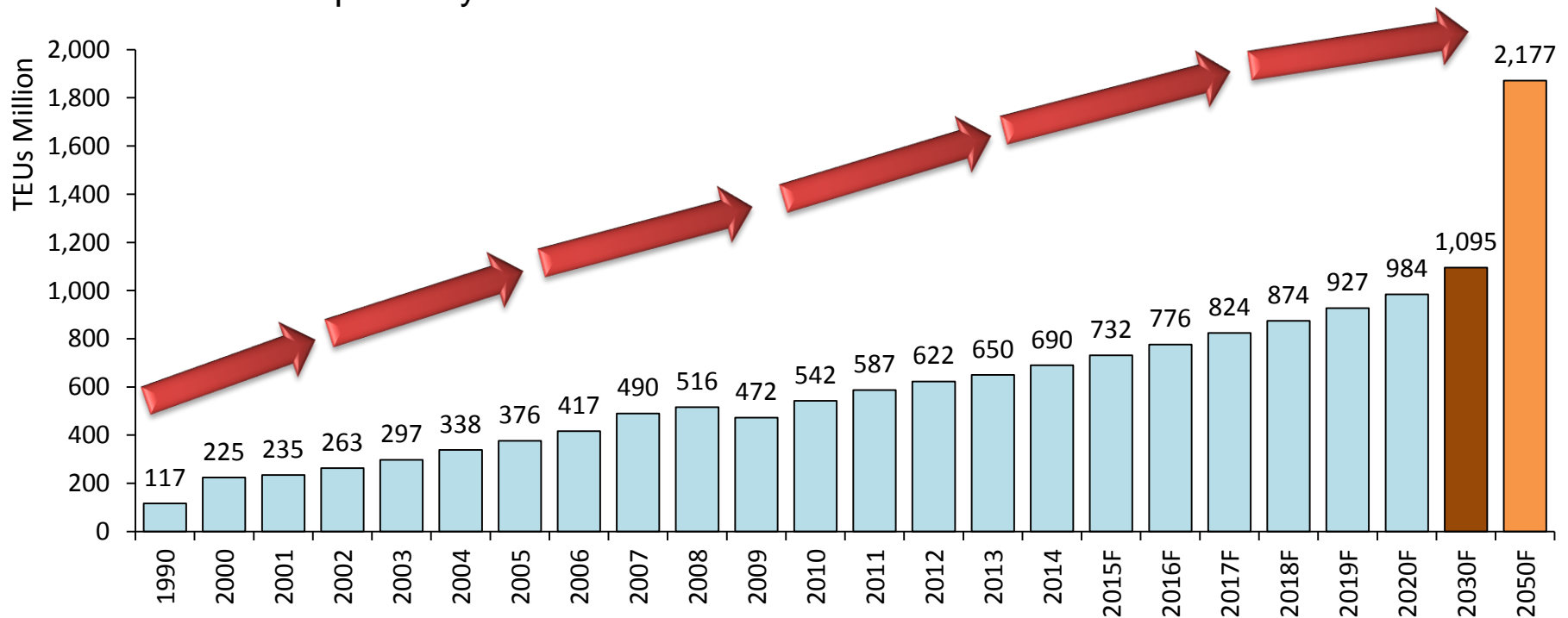


Dry cargo doubled from 4.5 billion metric tons in 1989 to 14.2 billion metric tons in 2016.



World containerised cargoes outlook remains positive

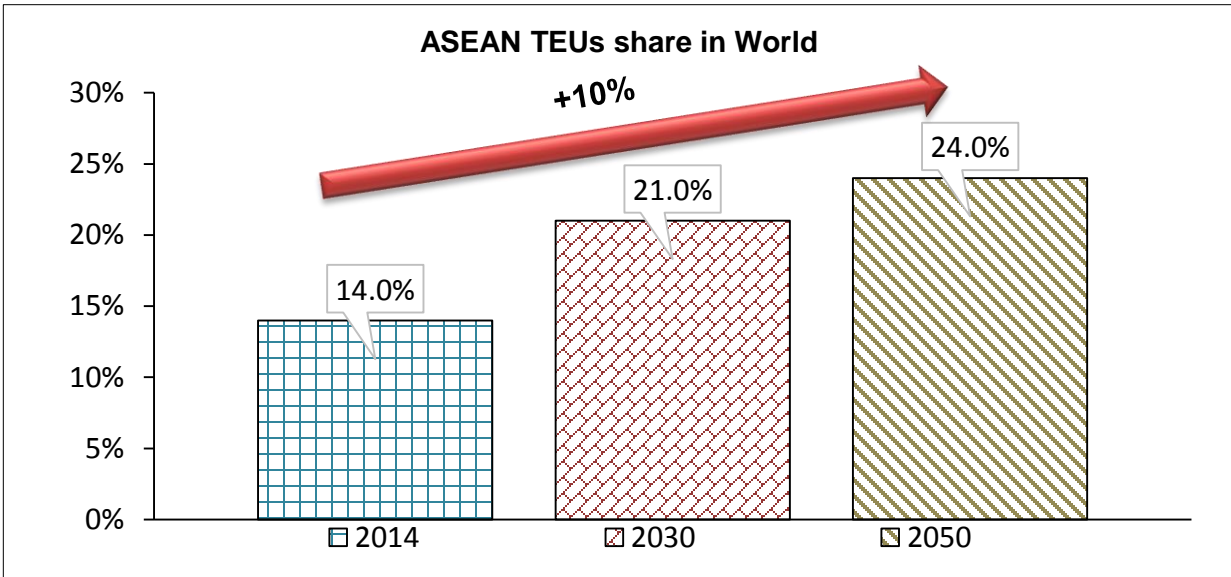
- Global container throughput has been on an upward trend, rising by 7.4% pa in 1990-2014.
- The anticipated rise in free trade agreements and multilateral trade pacts would drive more trade flows.
- Ocean shipping still playing an important role to support the global supply chain.
- The Container Terminal Foresight 2020 projects containerised cargoes to grow by 6.1% pa in 2013-2020.
- By 2020, the global container throughput is estimated to hit almost 1 billion TEUs.
- OECD forecasts world containerised cargoes will hit 1.1 billion TEUs in 2030 and 2.1 billion TEUs in 2050 respectively.



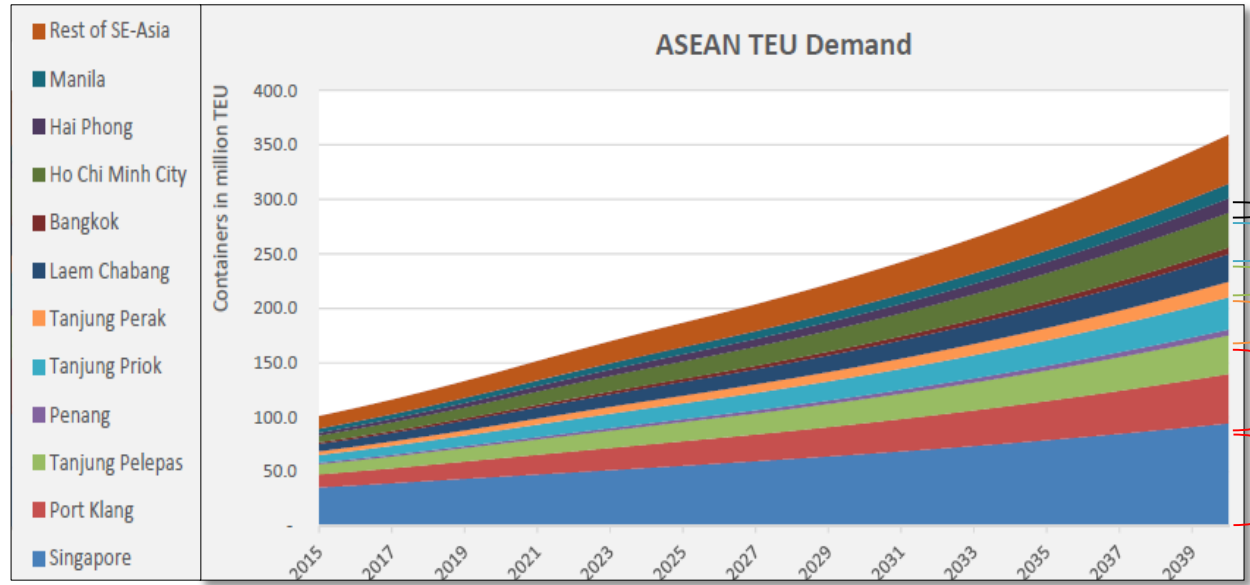
Note: Forecast 2015 to 2020 from ctf2020info, Forecast 2030 & 2050 from OECD

Source: World Bank, UNCTAD, ctf2020.info, OECD

ASEAN's containerised cargoes outlook remains good



- ASEAN's TEU demand grew by 7.2% pa in 2000-2014.
- OECD estimates ASEAN TEU's share of world container traffic will rise to 21% in 2030 and 24% in 2050 respectively:
 - 2030 ≈ 231 million TEUs
 - 2050 ≈ 520 million TEUs



Vietnam's TEU demand may be greater than Thailand in future

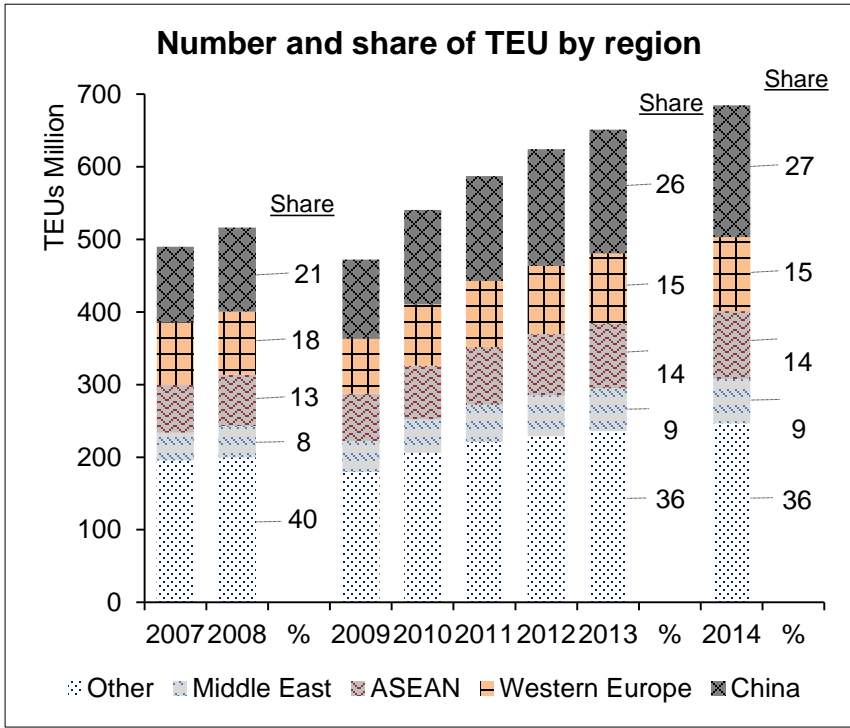
For Indonesia, domestic TEU demand still playing a major role

Singapore maintained 1st placing and Malaysia's 2nd ranking

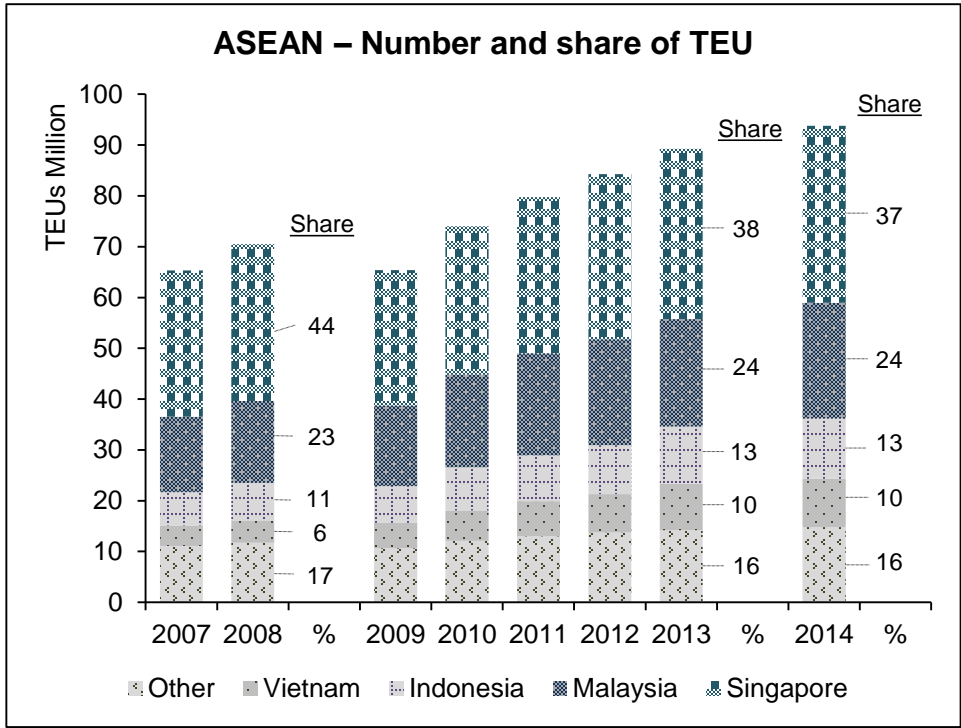
Source: Maritime & Transport Business Solutions (MTBS)

Status of ASEAN ports in world containerised throughput

- Global container throughput increased by 6% to 609 million TEUs in 2014 (650 million TEUs in 2013) while that of ASEAN grew by 4.6% pa to 93 million TEUs in 2007-14.
- China had the highest container traffic share (27%) in 2014. Before 2014, Western Europe is the second biggest shareholder in container throughput. In 2014, both ASEAN and Western Europe accounted the same share of container throughput share (14% each).
- In ASEAN, Singapore and Malaysia commanded about a large 60% share of container throughput.

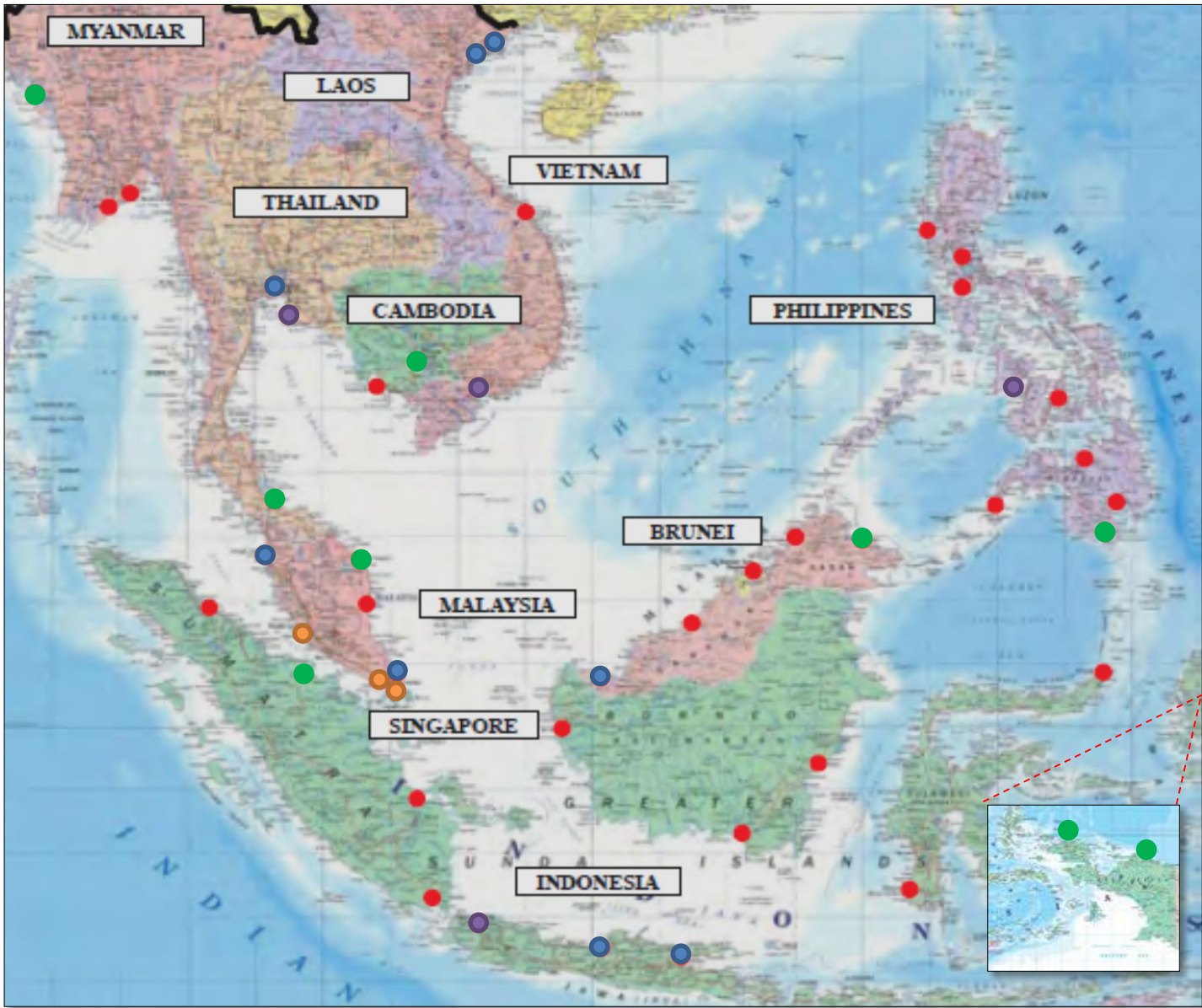


Source: UNCTAD



Source: UNCTAD

The scale and purpose of 47 designated ports in ASEAN

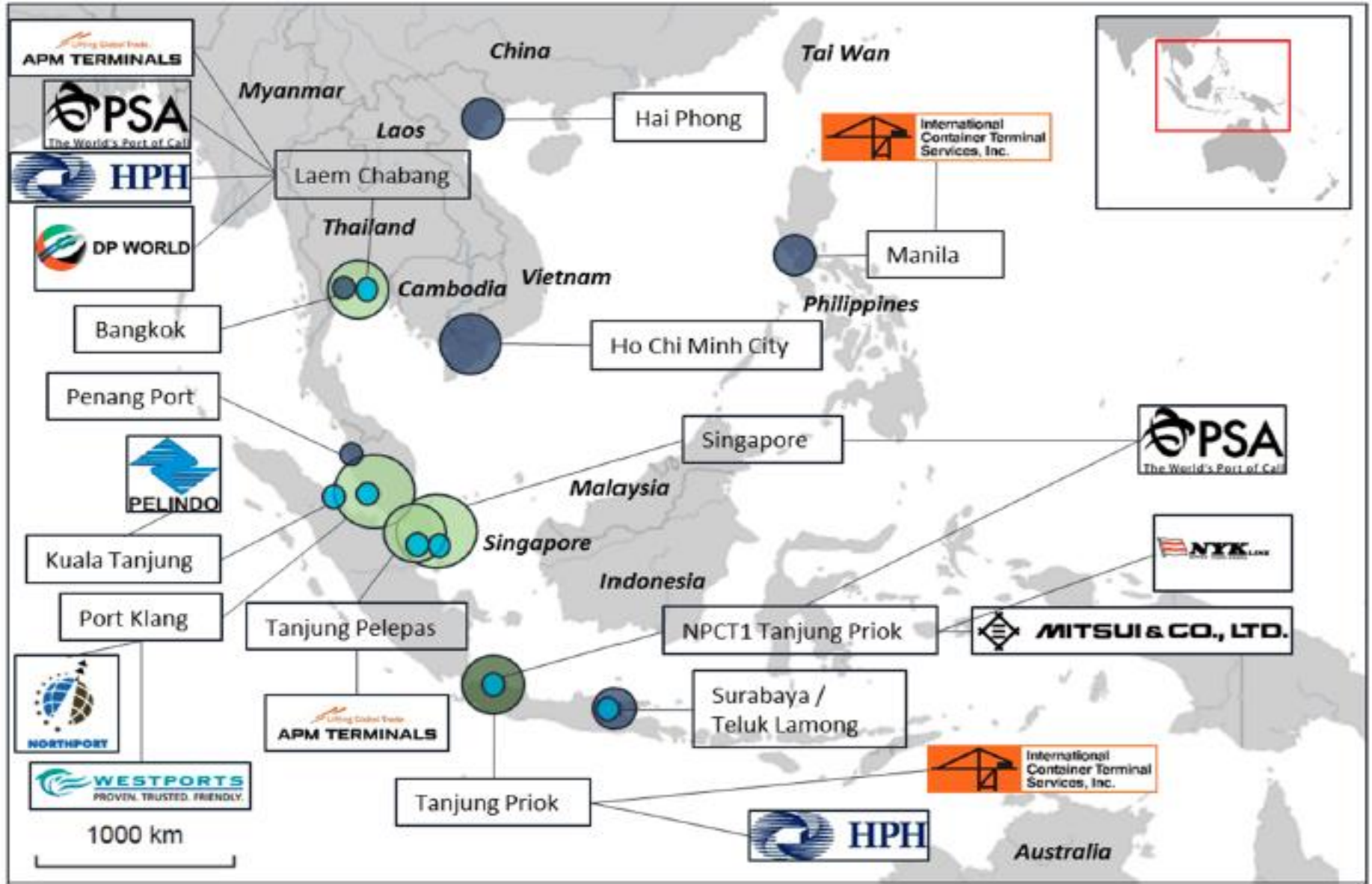


Notes :

- 3
World class transshipment ports serve as a hub of trunk line services.
- 4
World class ports serve as a main gateway to their country
- 8
Large scale ports serve mainly for inter regional container shipping.
- 23
Small scale ports serve mainly for intra regional container shipping.
- 9
Small scale ports (terminals) mainly for coastal and/or sub-regional services.

Source: ASEAN Maritime Transport Working Group

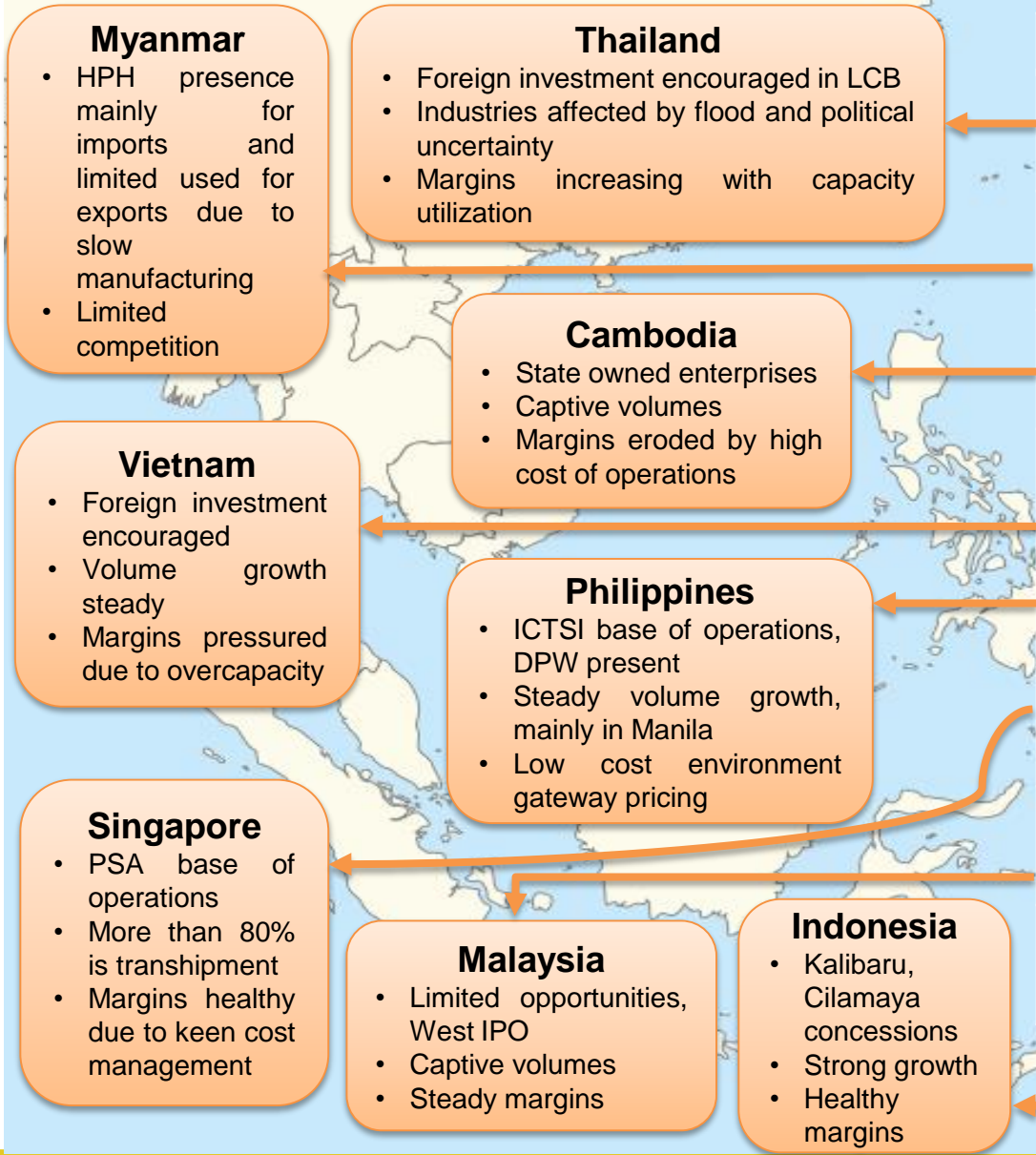
Major port operators in ASEAN region



Source: Maritime & Transport Business Solution (MTBS) (June 2015)

Assessment of investment opportunities in ASEAN's ports

Positive outlook in Philippines, Myanmar and Indonesia



Country	Access	Volume	Tariff	Margin
Thailand	Good	Fair	Poor	Good
Myanmar	Fair	Fair	Good	Good
Cambodia	Poor	Fair	Fair	Poor
Vietnam	Good	Good	Poor	Poor
Philippines	Fair	Fair	Good	Good
Singapore	Poor	Poor	Good	Good
Malaysia	Fair	Fair	Poor	Fair
Indonesia	Good	Fair	Good	Fair

Good
 Fair
 Poor

New normal in global trade and container shipping

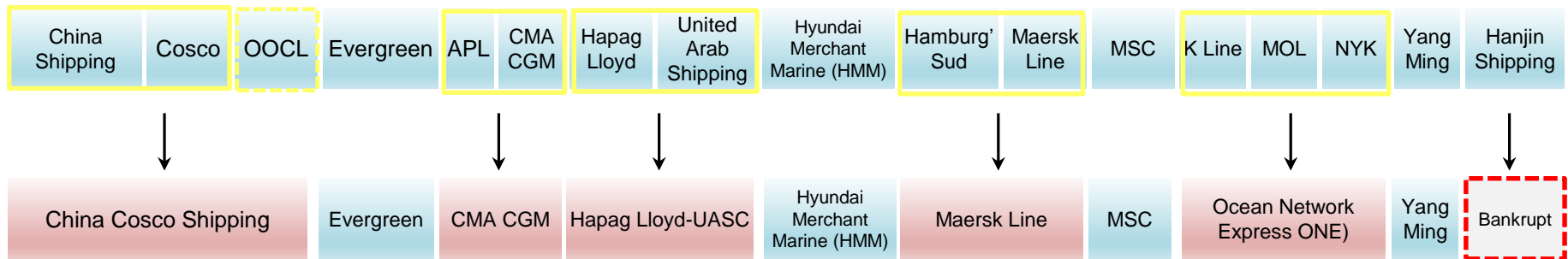
1. Increasing consolidation in shipping operators

- Container shipping market remains fragmented with the world's top five containers accounting less than 50% of global market. Developed countries controlled almost 60% of global vessels ownership while that of developing countries are controlled by China.
- As at end-July 2016, Maersk is the largest liner (15.1% of operated container ship capacity by TEU), followed by Mediterranean Shipping Company (MSC) at 13.4%, CMA CGM (9.2%), China Ocean Shipping Company (Cosco) at 7.8% and Hapag-Lloyd (4.8%).
- Since 2008-09 Global Financial Crisis, the financial pressure due to plummeting shipping rates have triggered the consolidation of weaker carriers. Strategic consolidation via mergers and acquisitions may be a route to survival, allowing lines to create economies of scale and to realise synergies.
- The trend of industry consolidation and strategic alliances will continue as the shipping lines see considerable benefits and long-term strategic advantage to merge or make acquisition rather than build new ones.
- The consolidation of container shipping lines should achieve cost savings, have bigger geographical footprints, and improved network utilization. The economies of scale benefits in ship systems are already being achieved through Alliance membership.

New normal in global trade and container shipping

- Since 2015, the world's top container operators are already in the midst of consolidation, whether through merger or acquisition, is seen as a strategic move to improve profitability and ensure a more sustainable structure for the shipping industry.
 - In June 2017, Hapag-Lloyd and United Arab Shipping Company (UASC) completed a merger that created the fifth-largest container shipping line in the world, the impact will only be realized in 2018 and in 2019.
 - In 2015, China Shipping Group and Cosco group have merged their shipping operations.
 - The 3rd largest container operator, French carrier CMA CGM concluded the purchasing of Singapore-based Neptune Orient Lines in June 2016.
 - Cosco has made offer to buy Hong Kong's Orient Overseas Container Line (OOCL)
 - K Line, MOL and NYK have announced on 31 May 2017 that their container shipping joint-venture as Ocean Network Express (ONE).
 - In August 2017, South Korea's Hyundai Merchant Marine, Pan Ocean and 12 other shipping companies that are involved in routes in the Asian region announced their cooperation and restructuring efforts to boost their profitability on routes to Vietnam, Indonesia and other countries. This effort came after the collapse of Hanjin Shipping. The consortium named Korea Shipping Partnership (KSP) is expected to commence in 2018.

Mergers and Acquisitions



Expected benefits of acquisition of OOCL by Cosco Shipping

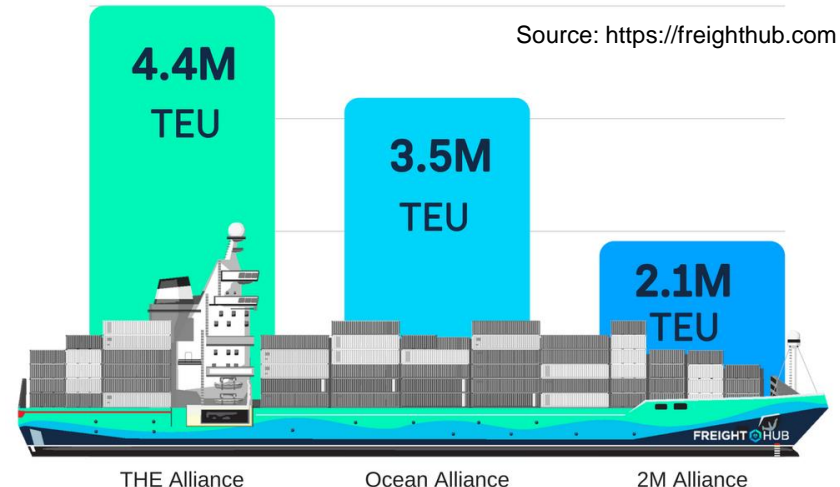
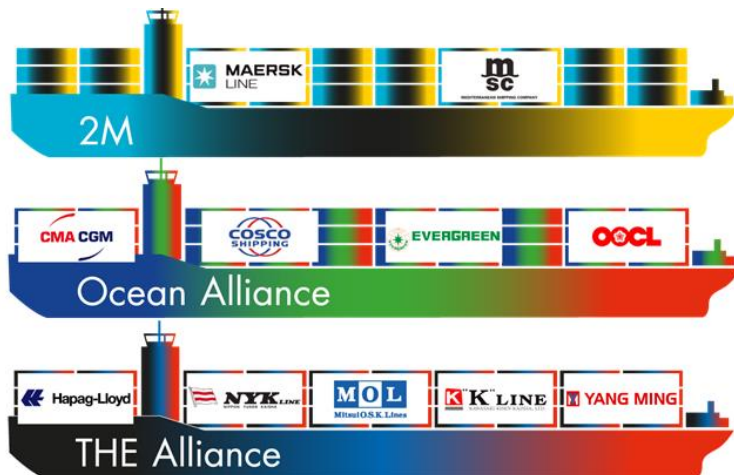
Trade Route	Cosco's share (%)	Cosco + OOCL (%)	Incremental share
Northeast Asia - Oceania	14%	27%	+13%
Transpacific	11%	18%	+7%
Asia - Europe	11%	15%	+4%
Asia- Indian Subcontinent	6%	11%	+6%
North Europe – North America	2%	7%	+4%

Source: Extracted from "Ocean Freight Market Update, Aug 2017)

- China is now taking over 3% of OOCL's global container trade, reinforcing its position in the global maritime trade routes.
- The acquisition affirmed China's leadership in the North East Asia - Oceania route, taking control nearly 1/3 of the trade.

2. Forging shipping alliances as a “Game Carriers”

- The Vessel Sharing Agreement (VSA) allows alliance members to share vessels, exchange space, charter each other’s ships within the international trade routes, and share port calls.
- The top global carriers have joined forces in three global alliances and they collectively hold more than 90% of the Trans-Pacific trade and 96% of Asia-Europe trade. The fact is that shipping alliances will impact shippers and ports in terms of size of vessels and locations.
 - Transport High Efficiency alliance (THE alliance): Hapag-Lloyd (Germany), Yang Ming Taiwan), UASC (UAE), and Japan’s NYK, MOL (Japan) and K-Line
 - Ocean alliance: CGM CMA (France), Evergreen (Taiwan), Cosco Shipping (China) and Hong Kong’s OOCL (which Cosco has offered to purchase)
 - 2M alliance: Maersk and Mediterranean Shipping Co (MSC)



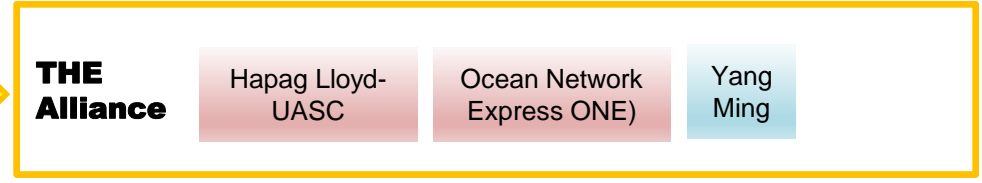
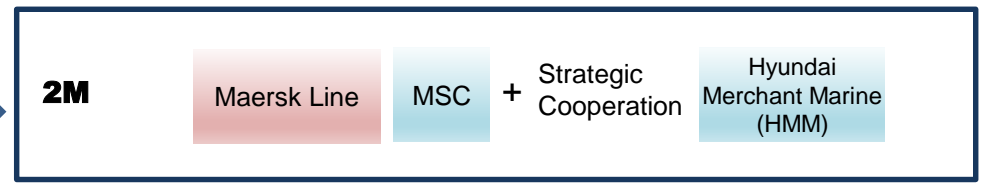
The New Shipping Alliance Landscape

fully operational as of April 2017













Former 4 Alliances




Current 3 Alliances



Capacity Breakdown of the 3 Maritime Alliances

Trade Route	THE Alliance	OCEAN Alliance	2M alliance + HMM	Total 3 Alliances
Number of vessels (1 April 2017)	241	323	223	787
Carrying capacity	4.4 million TEUs	3.5 million TEUs	2.1 million TEUs	
Port calls	78	95	75	
No. of weekly services	32 loops	40 loops	25 loops	
East-West trade lanes capacity breakdown				95.5%
Trans-Atlantic	33.4%	13.9%	43.3%	90.6%
Trans-Pacific	28.7%	41.4%	24.3%	94.4%
Euro-Far East	23.4%	34.9%	40.3%	98.6
Share breakdown (for East-West routes capacity)	 12.5%  17.2%  13.4%  40.9%  15.9%	 11.7%  22.5%  29.2%  36.6%	 38.9%  51.4%  9.7%	

Members of alliances

-  Maersk
-  HMM
-  MSC
-  HMM
-  OOCL
-  Evergreen
-  Cosco
-  CMA CGM
-  Yang Ming
-  K-Line
-  Hapag-Llyod
-  NYK line
-  MOL

Data as of January 2017, unless specified.

Trans-Atlantic trade route is the route between Europe and North America, mainly between Europe and the US East Coast. Trans-Pacific is the route between the Far East and North America, mainly dominated by containers heading for US West Coast port. Euro-Far East is the trade route between Asia and Europe (mostly Western Europe) with most vessels going through the Suez Canal

Source: Flexport (<https://www.flexport.com>)

Impact of shipping alliances and formation of port alliances

- The shipping alliances game plan will be played in the network capacity optimization area, as pricing coordination is out of bounds under the anti-cartel statutes and regulatory approvals.
- Streamlining of networks and developing a platform of shared-services is crucial in improving productivity and quality of service (where demand has grown) while helping to cut costs where demand remains low.
- Maritime shipping is highly sensitive to bunker costs, which constitute 45-50% of total operating costs. This implies that fuel prices are the likely consideration of routing and port calls options. Next highest variable cost is port charges (20%), which underscore the importance of economies of scale in containerized maritime shipping. The carriers' mergers and alliances will drive hub consolidation and foster price competition.
- As carriers consolidate and rationalize their port calls, ports and terminals are facing tremendous pressures of ensuring that their facilities can accommodate bigger vessels being deployed, and that the cargo volumes (in and out) are huge. It will eventually come down to the efficient choice for port calls.
- The 3 alliances are adding direct routes while dropping some routes, with new port pairings on the trade routes. This means that options for trans-shipments will grow, improve in speed and reliability. For the Asia-Europe route, savings of three or more days are possible. Key reason for shorter transit is because the alliances have dropped some ports from their services.

Impact of shipping and port alliances on Malaysia's ports

- The emergence of fewer but larger alliances pose risks to trans-shipment ports because not only it reduces customers' pool for port operators, but also increases the loss of 'big' clients.
 - *It is expected to have an impact on Port Klang given that both THE Alliance and Ocean have higher reliance on Singapore. Singapore gets 34 weekly calls from the 29 Asia-Europe loops with the 3 alliances compared to previous 29 calls and 27 services while Port Klang's weekly calls is set to reduce to 5 from 11.*
 - *Singapore port gained from the joint venture between PSA-Singapore and CMA CGM. The CMA CGM-PSA Lion Terminal is part of the group's continuing efforts to make Singapore the main hub in the region. The deal would also mean that Singapore can regain some of the container traffic that it lost to Port Klang and Tanjung Pelepas.*
- In a nutshell, the threats are real. The shippers and ports must act now and be prepared to deal with the economic realities of shipping alliances.
 - The ports need to prepare themselves for fewer visits and increased costs on the landside as more man hours and equipment will be utilized to accommodate vessels' drive for shorter stays in port.*
 - The shippers should manage the impact of fewer calls on their transit times, capacity "shortages", FOB points, and the overall pricing pressures.*

Section 2

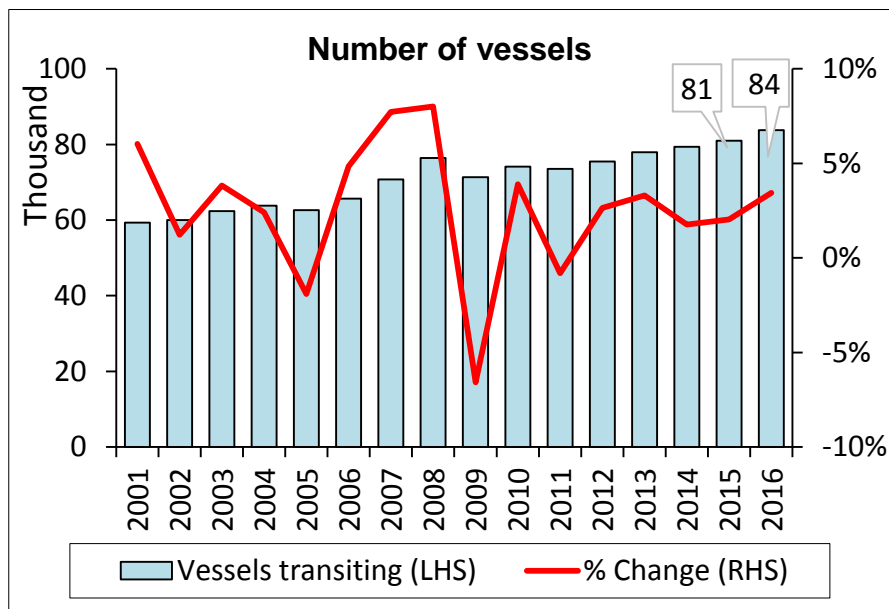
Strategic interests of the Strait of Malacca



The Strait of Malacca in perspective

- **Pivotal shipping waterway.** The Strait of Malacca is one of the most important trade route and shipping waterways in the world from both economic and strategic perspectives.
- **A key link between the East and West.** It is the shortest shipping channel linking between the Andaman Sea (Indian Ocean) and the South China Sea (Pacific Ocean), connecting major economies such as the Middle East, China, Japan, South Korea, etc.
- **Growing shipping traffic...** More than 200 vessels passing through the Strait of Malacca on a daily basis, generating an annual throughput of approximately 70,000 ships. The maritime transport carries 80% of the oil transported to Northeast Asia, and also shipped one third of the world's traded goods including Chinese manufactures, Indonesian coffee, etc.
- **...may create choke point.** The Strait of Malacca is not deep enough to accommodate some of the largest ships (mostly oil tankers). It remains one of the world's narrowest straits: 1.5 nautical miles, or about 1.7 miles on land, at its narrowest point, the Phillips Channel, near Singapore, creating one of the world's traffic chokepoints.

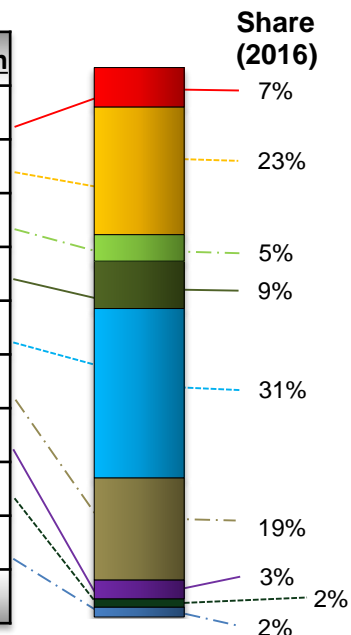
The importance of the Strait of Malacca



Source: Marine Department Peninsular Malaysia

- The Strait of Malacca remains an important waterway for international trade along the Europe-Far East route.
- Being one of the busiest shipping lanes in the world, about 80% of world's maritime trade between East and West must go through the Strait of Malacca.
- The number of vessels transiting the Malacca Straits had increased by 2.2% pa to 83,740 in 2016 from 59,314 in 2001.

Type of Vessel	2009	2016	PA Growth
VLCC	4,221	5,973	4.4%
Tanker Vessel	16,398	19,466	2.2%
LNG Carrier	3,330	4,057	2.5%
Cargo Vessel	8,560	7,225	-2.1%
Container Vessel	22,310	25,768	1.8%
Bulk Carrier	11,186	15,547	4.2%
Ro-Ro	2,394	2,873	2.3%
Passenger Vessel	1,250	1,294	0.4%
Others	1,710	1,519	-1.5%
TOTAL	71,359	83,740	17%

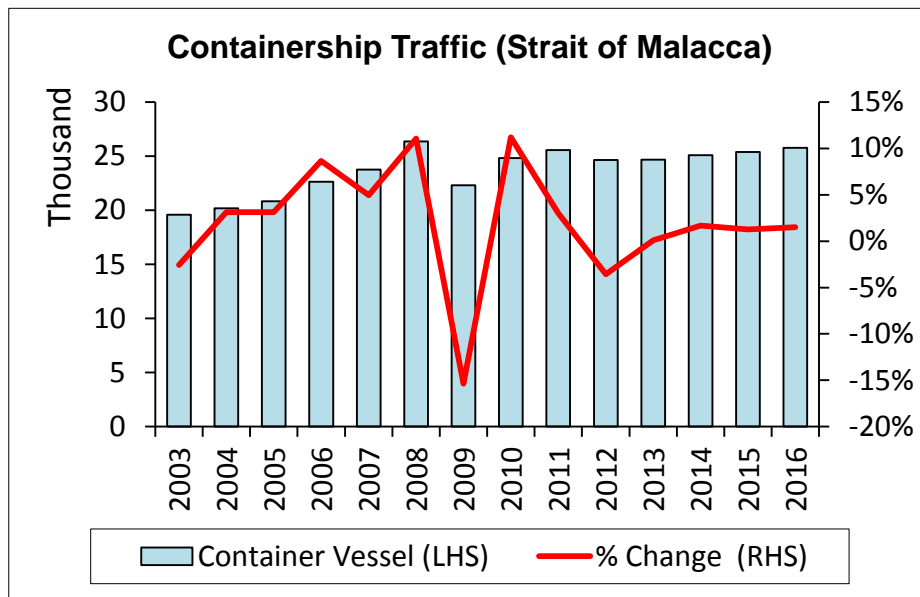


Note: VLCC = Very Large Crude Carrier

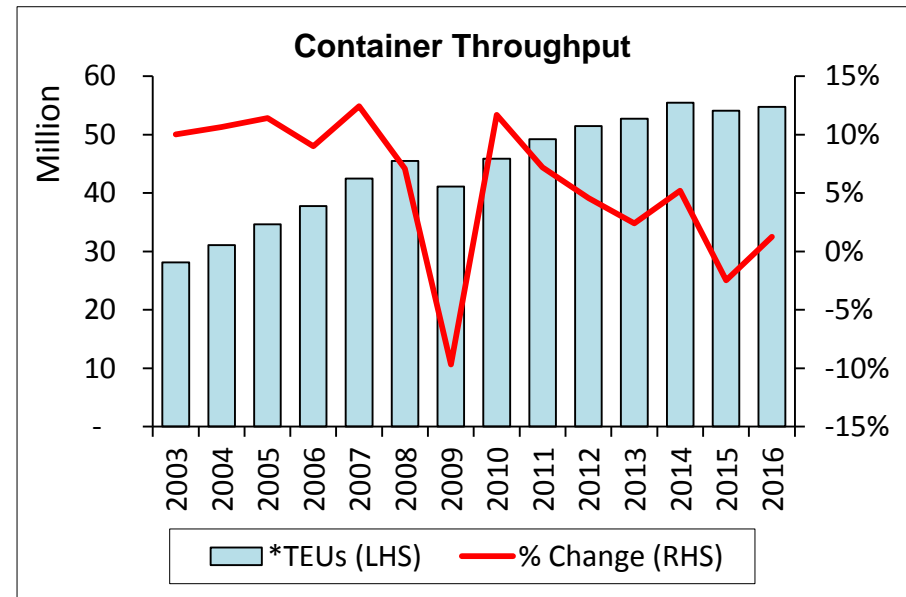
Source: Marine Department Peninsular Malaysia

- Except for cargo vessels, strong growth were recorded in VLCC (+4.4% pa) and bulk carriers (+4.2% pa) in 2009-2016.
- The decline in cargo vessels were due to containerization, which provides higher efficiency movement¹ compared to cargo vessels. In 2016, container ships (31%), tanker vessels (23%) and bulk carriers (19%) made up almost 75% of vessels transiting through Straits of Malacca.

¹Container ship can be loaded and unloaded in a few hours compared to days in traditional cargo vessel. Thus, customer prefer container because of lower shipping expense and decreased shipping time.



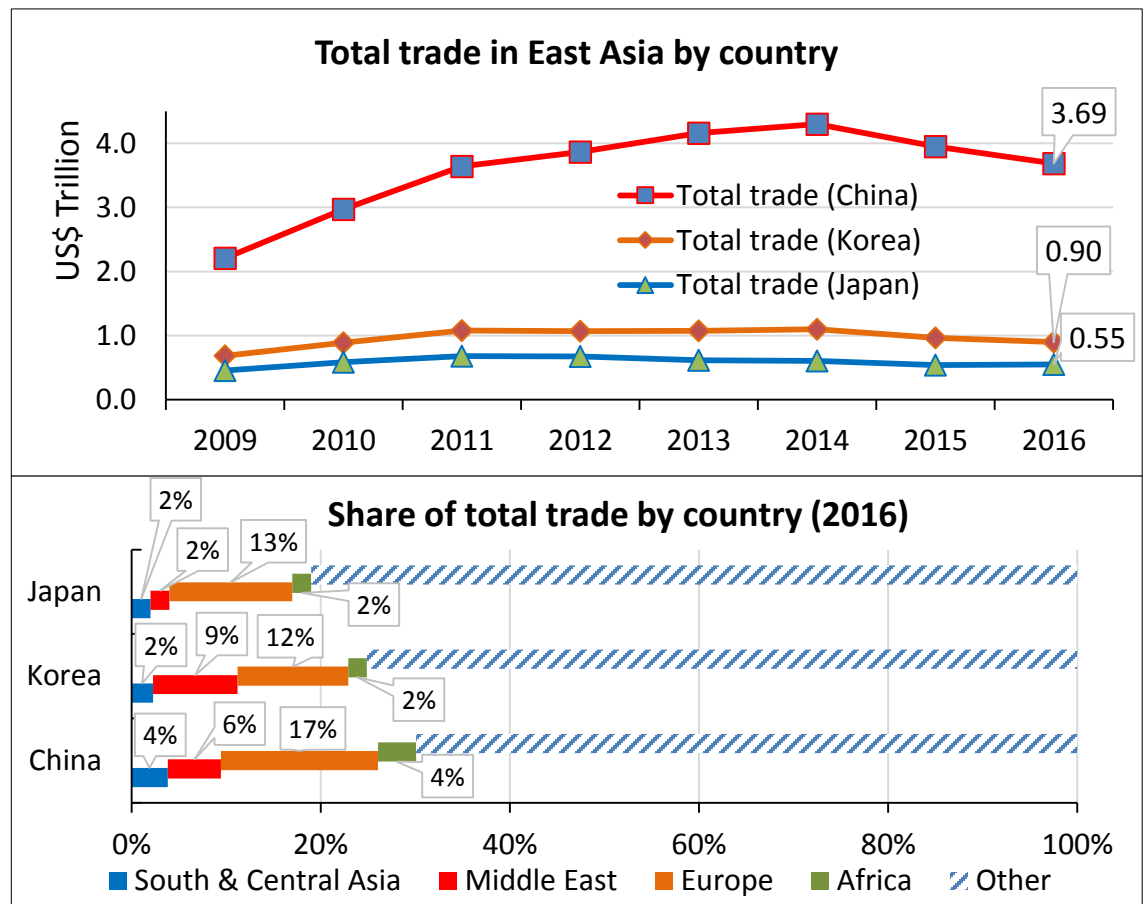
Source: Marine Department Peninsular Malaysia, Seatrade-maritime.com



Note: *TEU = Peninsular Malaysia + Singapore Source: MOT, MPA Singapore

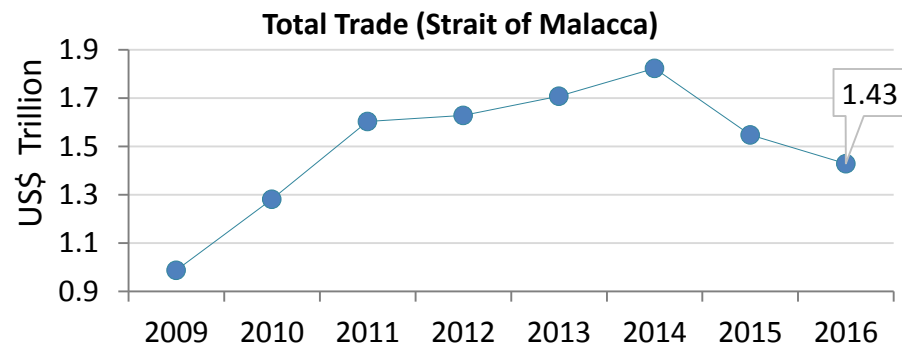
- Containership traffic increased by 2% pa from 19,575 vessels in 2003 to 25,768 vessels in 2016.
- The upsizing of container vessel allows higher volume of carrying goods, and thus benefitting from economic of scale.
- In the Strait of Malacca, the container throughput hit a record of 54 million TEUs in 2016 (28 million TEUs in 2003). After 2008-09 Global Financial Crisis, container traffic and container throughput dipped to 24,000 vessels and 50 million TEUs respectively. The Strait of Malacca held about 7% share of global container throughput in 2016 (an average share of 9% in 2003-2015).
- Containership in maritime market helps to shorten shipping time (faster loading and unloading), minimize the loss or damage from labour or manual handling due to mechanisation, lower warehousing and transportation costs.

Straits of Malacca



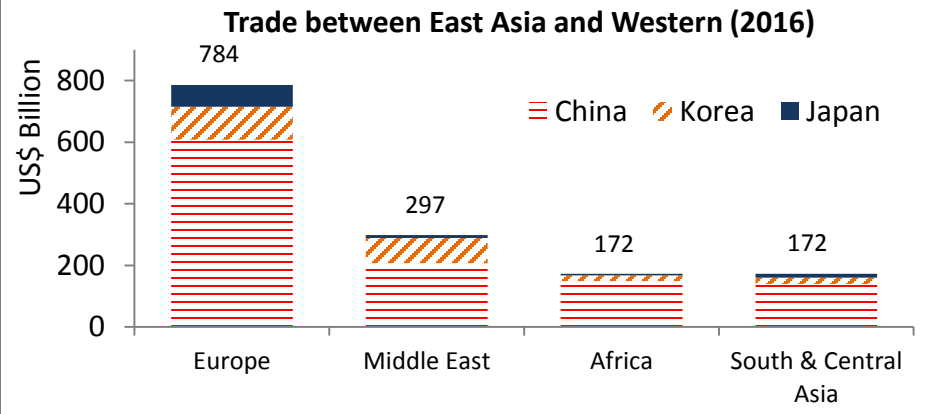
Source: Trade Statistics of Japan, Korea Customs Service, National Bureau of Statistics of China
 Note: Japan trade data is sea container cargo value, China and Korea trade are mix transportation value.

- Almost all trade from East Asia with Middle East, Europe, Africa, South and Central Asia are sea-borne. Thus, Straits of Malacca serves as the key sea route connecting the South China Sea and the Indian Ocean.
- In 2016, 19% of Japan's total trade, 25% of Korea's total trade and 31% of China's total trade passed through the Strait of Malacca. At least 12% each of these countries' total trade were from the Europe region.

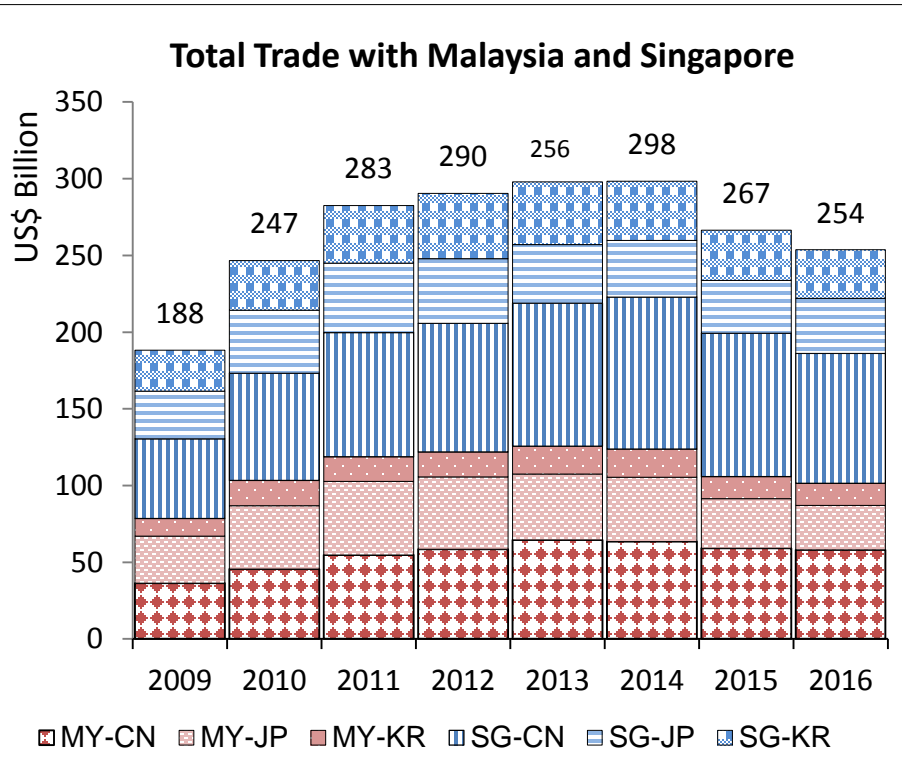


Note: Total trade calculated based on import and export from China, Japan, Korea to Western region.

Source: Trade Statistics of Japan, Korea Customs Service, National Bureau of Statistics of China



Source: Trade Statistics of Japan, Korea Customs Service, National Bureau of Statistics of China



Note: ** KR = Korea, CN = China, JP = Japan

Source: Bank Negara Malaysia, Statistics of Singapore

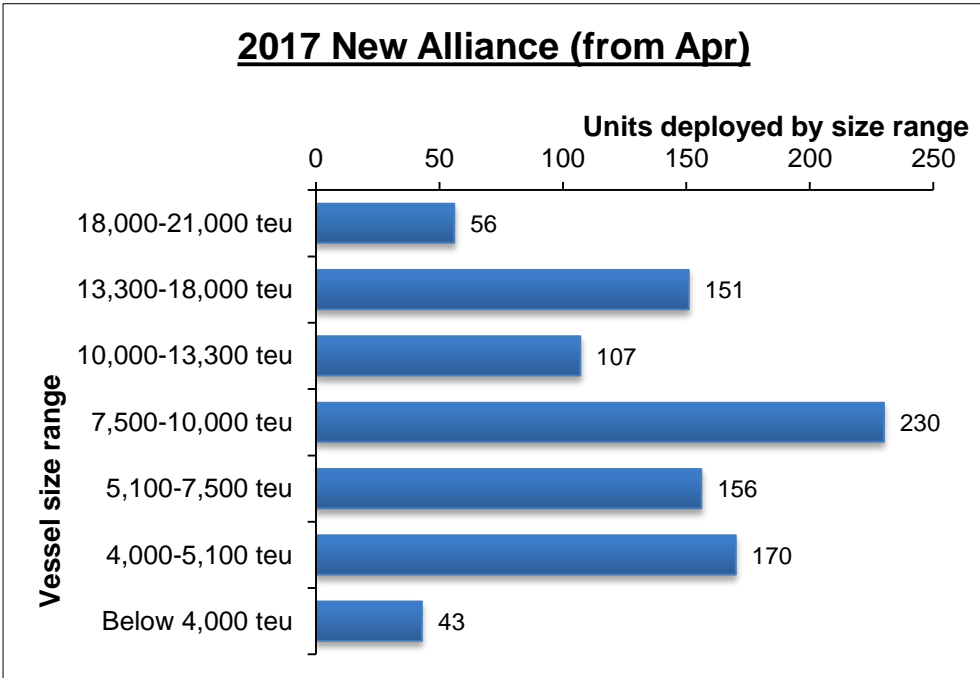
- In 2010-14, an average of US\$1.58 trillion worth of merchandise trade from/to China, Korea and Japan passed through the Strait of Malacca per year before slowing to US\$1.54 trillion in 2015 and US\$1.43 trillion in 2016 respectively.
- Almost half of total trade was from Europe (US\$784 billion), one fifth in total trade generated by Middle East (US\$297 billion) and a small minority in total trade from Africa, South & Central Asia. Thus, East-West's trade is heavily relied on Straits of Malacca.
- In 2016, total trade between Malaysia and Singapore was about US\$254 billion.

Scalable of the Strait of Malacca (containership)

- In 2015, 5,249 containerships were in service. 72.1% of the class of containerships in service is not more than 8,000 TEUs. It is observed that large containerships are majority owned by shipping alliances, which mainly provide services for the long-distance.
- According to gCaptain (2017), one of the largest vessels “MOL Triumph (length=400m, wide=59m capacity = 20,170 TEUs, Tonnage=192,672dwt)” will operate on THE Alliance’s Asia to Europe trade via the FE2 service (Refer to Appendix).
- In May 2017, a new largest capacity of 21,413 TEUs named as OOCL Hong Kong will be serving the Asia-Europe trade lane on LL1 service (Refer to Appendix).
- Thus, the Strait of Malacca will have no issue to handle the upcoming of mega containerships.

World Cellular Containership Fleet in Profile (As of January 1, 2016)		
Class (TEU Range)	In Service	
	Ships	% of Share
Feeder (100-999)	1,070	20.3
Handy size (1,000-2,999)	1,883	35.8
Sub-Panamax (2,000-2,999)		
Panamax (3,000 & Over)	844	16.0
Post-Panamax (>8,000)	680	12.9
Post-Panamax (8,000-11,999)	533	10.1
Post-Panamax (12,000 & over)	239	4.5
Total	5,249	100.0

Source: Clarkson Research



Source: Alphaliner, DDF team

SWOT analysis: The Strait of Malacca



Strengths

- Priority route connecting between East and West
- Well establishment infrastructure along the Strait of Malacca
- Carrying about 80% of world maritime trade between East and West
- More than 60,000 merchant ships ply the waterway per year



Weakness

- Navigation safety
- Cater vessels up to VLCC size due to the narrowest point in the Phillips Channel of the Singapore Strait (wide = 1.7 miles)
- Difficulties in making decisions on some issues since the Strait was shared by three countries (Malaysia, Indonesia and Singapore)



Opportunities

- Opportunity of port expansion
- Integrate latest technology into port operation and system
- Increasing China's keen investment in surrounding areas spur linkages with China's ports
- A strong growth in seaborne trade that creates auxiliary demand for other services



Threats

- Rising trade volumes and high traffic volume could potentially result in congestion
- Terrorism and piracy issues
- Environment issues and rising cost of managing the Strait and coastal area

The Strait of Malacca – Challenges and Issues

- Given that the Strait of Malacca is a prominent link in international trade, a vital artery and energy corridor for regional countries such as China, Japan and South Korea, any non-economic shocks destabilize security along the Strait not only disrupts the region's trade flows but also inflicts negative ramifications on the region.
- Notably, China views the strategic significance of the “Malacca Strait Dilemma” given 80% of its energy needs move through this waterway. This probably justified China's keen interest to invest in ports infrastructure in South East Asia and Melaka, in particular.
- The **Strait of Malacca faces a compendium of threats** as follow:
 - **Increasing traffic volume.** Rising trade volume has resulted in increasing traffic volume and strains on congestion. With bigger and mega-ships, navigation safety concern arises given the narrowest waterway of only 1.7 miles across. There are alternative waterways such as the Sunda Strait and Lombok Strait. But the former is too shallow while the latter too far detoured.
 - **Heighten the risk of pollution and environmental problems** arising from higher traffic volume and increasing risk of oil spills and collisions. Malaysia not only faces the risk of pollution, erosion and degradation threats; and rising cost of managing the Strait and coastal areas, but also suffers damages to economic activities, i.e. environmental impact, fishing and tourism.
 - **The Strait of Malacca's vulnerability to threats of terrorism.** Rising security threat from terrorism and piracy attacks would put additional financial burden on security spending.

Section 3

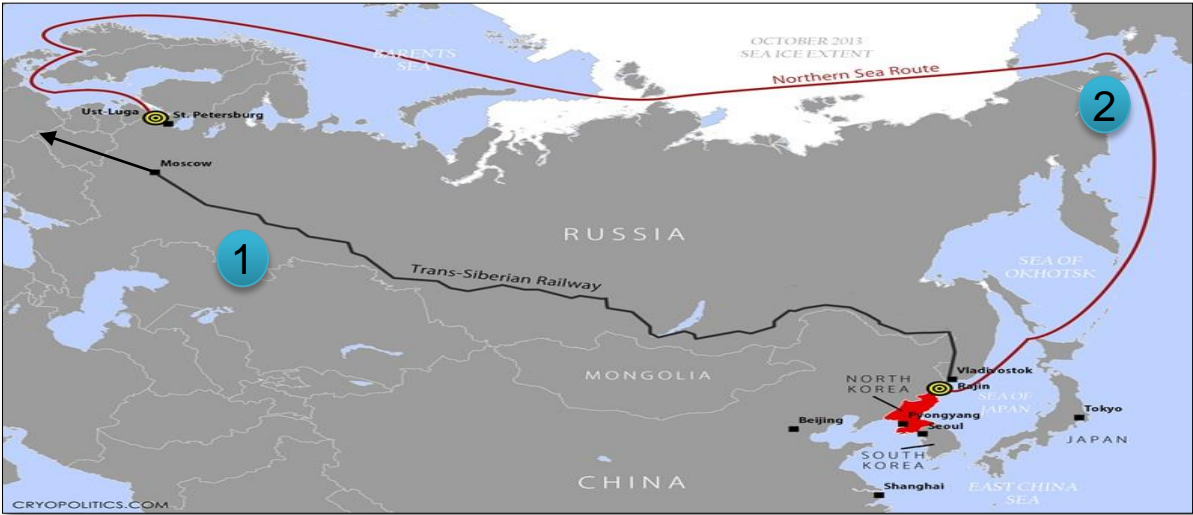
Other alternative routes: Complementary or threats to the Strait of Malacca



Exploring other options to by-pass the Strait of Malacca

- Faced with the problems of potential congestion and navigation security, China, Japan and South Korea, which are highly dependent on the Strait of Malacca for the passage of energy and goods supplies, have shown keen interest in exploring alternative navigation routes, whether in the form of rail, roads, rail-port, and including pipeline projects.
- Given the importance of energy security, having an alternative route to transport oil imports from the Middle-east would be a strategic move to reduce over-reliance on the Strait of Malacca as the main passage for oil imports.
- Recognizing the choke-point of the Strait of Malacca and the related sea lines dominated by the US, China has initiated the Belt and Road initiative, which amongst others to develop maritime infrastructure including ports across the region. This is seen as a strategic move to protect its security, trade and energy interest.
- China's territorial dominance is evident in the funding and supporting of infrastructure projects around this region. In Malaysia, the projects include RM42 billion harbor Malaysia-China joint venture project in Malacca and the Port Klang-Kuantan Port land bridge, which is part of China's resolution to reduce over-reliance on Straits of Malacca.
- Some of the initiatives and projects development are as follows:
 1. Trans Siberial Railway
 2. Northern Sea Route
 3. Dawei – Laem Chabang Linkage
 4. Kra Canal

Alternative routes by-passing the Strait of Malacca

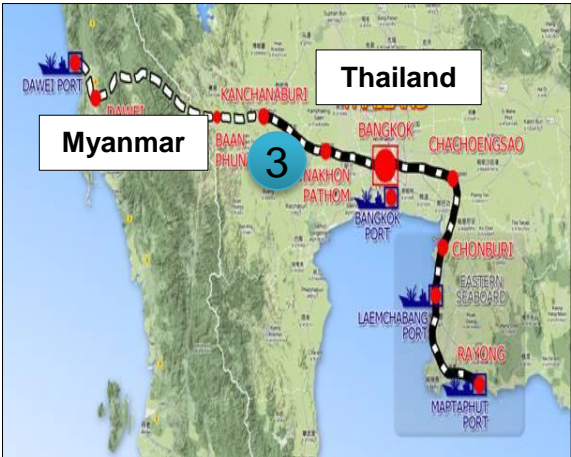


Current routes

- 1 Trans-Siberian Railroad
- 2 Northern Sea Route

Potential routes

- 3 Dawei – Laem Chabang Linkage
- 4 Kra Canal



Source: cryopolitics.com, theindependent.sg ,realist.co.th

1 Russia – “The Trans-Siberian Railroad” (current alternative)



Source: Daily Mail, SERC

- The length of Trans-Siberian Railroad (TSR) is 9,288km and one of best subsidiary transportation mode from East Asia (especially for China) to Europe region. TSR – Mongolian route offers the shortest distance for rail transport between Moscow and Beijing rather passes by China’s inland.
- From Shanghai to London, the transit time takes about 35 days by sea freight transport (through Suez Canal). But, this railroad has shortened the time delivery by 50% (about 16 to 18 days).
- Based on JSC Russian Railways (2014), TSR handled about 1.8 million TEUs in 2014. However, only 41.6% of 1.8 million TEUs were international destination freights.

“The Trans-Siberian Railroad”

Limitations / Problems

- Part of the railroad route is single track and not electrified, e.g. from Monty, via Aktogay up to Dostyk.
- Lack of availability of platform wagons for container transport on route from Europe to China border.
- Different administrative rules and documentations delay the delivery of train.
- Non-harmonised custom code makes clearance longer.
- Different technical railway standards to activate the train such as signalling system and weather conditions.
- Expensive compared to sea freight transport. According to SeaRate¹, cost in rail container platform (US\$7,891) is 3.5 times higher compared to ocean rate (US\$1,650).

Note: 1 = freight rate on 7/6/2017, no include country charges.

Current status

- “*The Trans-Siberian in 7 Days*” project launched in 2009 was aimed at promoting transit freight transportation from Russia’s eastern seaport to Moscow without delay and with a speed of 1,500km per day.
- In 2016, a 34 TEU-train successful travelled from China to Britain. Switzerland InterRail Group, the operator of this service is expected to increase the frequency of this freight route if there is additional demand.
- In future, with China’s Belt and Road (B&R) initiative, a third lane will be constructed through Central Asia to connect to Europe zone.

SWOT analysis: The Trans-Siberian Railroad



Strengths

- Another alternative shorter route for trade between East Asia and Europe region
- Provide enormous potential for trade from China to Europe
- Offering 50% shortened time of delivery compared to sea freight transport (through Suez Canal)



Weakness

- Limited capacity and expensive; limited frequency of services
- Certain route is single track and not electrified
- Lack of availability of platform wagons
- Different administrative rules and documentations; non-harmonised international custom standards



Opportunities

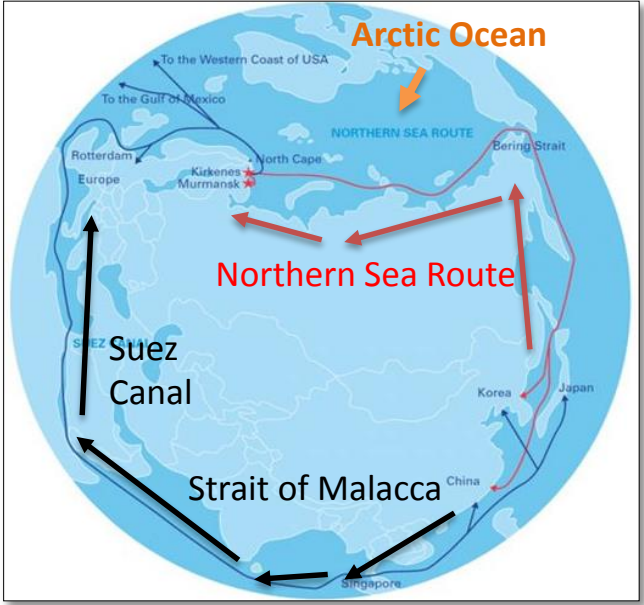
- Connecting Central Asia and Eastern Europe via China's BRI
- Enhance the rail track with latest technology and build a good technical support
- Uniform international trade
- Economic growth and socio-development as well as intermodal logistic businesses.



Threats

- Political conflicts and geopolitical risks
- Cultural and language differences
- Diversity in government policies and tax structures.
- Diversity in levels of infrastructure development
- Port performance is subjected to uncertainty of weather conditions

2 Asia-Europe “Northern Sea Route (NSR)” (current alternative)



Source: Arcticbulk

Sea route	Via Suez Canal			Through Northern Sea Route			Days saved
	Country	Distance NM.	Speed Knts	Days	Distance Nm.	Speed Knts*	
Shanghai, China	12050	14	37	6500	14	19	18
Busan, Korea	12400	14	38	6050	14	18	20
Yokohama, Japan	12730	14	39	5750	14	17	22

Note: * = Actual speed may depend on ice conditions
Source: Arcticbulk

- Northern Sea Route (NSR) is between the Arctic Ocean and the Pacific Ocean along the Russian coast of Siberia and the Far East.
- NSR is another shortcut between Asia and Europe. It has the potential to reduce half of transportation time and distance, decrease fuel consumption, and eliminate piracy risk.
- Approximately 40% shorter than via the Suez Canal (through the Strait of Malacca).
- According to Centre for High North Logistics (CHNL), only 16 vessels transited NSR in 2016. Five of 16 vessels (4 China vessels & 1 Japan vessel) from East Asia to Europe.
- The type of cargos for delivery in NSR usually are energy and mineral resources such as steel, coal and oil.

“Northern Sea Route (NSR)”

Limitations / Problems

- Hazardous route as the seas are icebound.
- The lengthy winter limits the shipping period to less than 6 months; and is only usable from July to November.
- Difficultly for tankers and LNG carriers to pass by because of the limited width of ice channel dug by current technology of icebreakers.
- Limited infrastructure build-up in Arctic Ocean.
- Equipment is very expensive. For example: cost US\$1 billion for an icebreaker or cost US\$1 ~ 2 billion for linear icebreaker.

Potential alternative route

- In the Arctic Ocean, an estimated 22% of world's undiscovered oil and minerals were covered by ice, which China has set its target on.
- This route can be a future maritime route to Europe, only if the sea-ice level is reduced. According to Institute of Economic Problems (2016), this new unblock maritime route may be operational by 2025, assisted by global warming when rising global temperatures will rapidly melting the Arctic ice.
- If this happens, the distance between East Asia and Europe will be shortened by 8,762km from 23,342km (through Suez Canal) to 14,580km. The speed of ships can be maximized to 18 knots.
- However, in the immediate and medium term, we rule out this route as feasible alternative route to by-pass the Strait of Malacca.

SWOT analysis: Asia Europe “Northern Sea Route (NSR)”



Strengths

- Compared to Suez Canal:
 - Reduce the distance between Asia and Europe by about 50%
 - Offering 40% shorter time of delivery
- Best route for energy and mineral resources such as steel, coal and oil due to the distance from source countries.



Weakness

- Subject to restrictions and limitations due to draught
- Short operational ice-free sailing period. Thus, not suitable for container shipping
- Limited infrastructure build-up
- Require assistance from ice-breakers – cost and waiting time issues



Opportunities

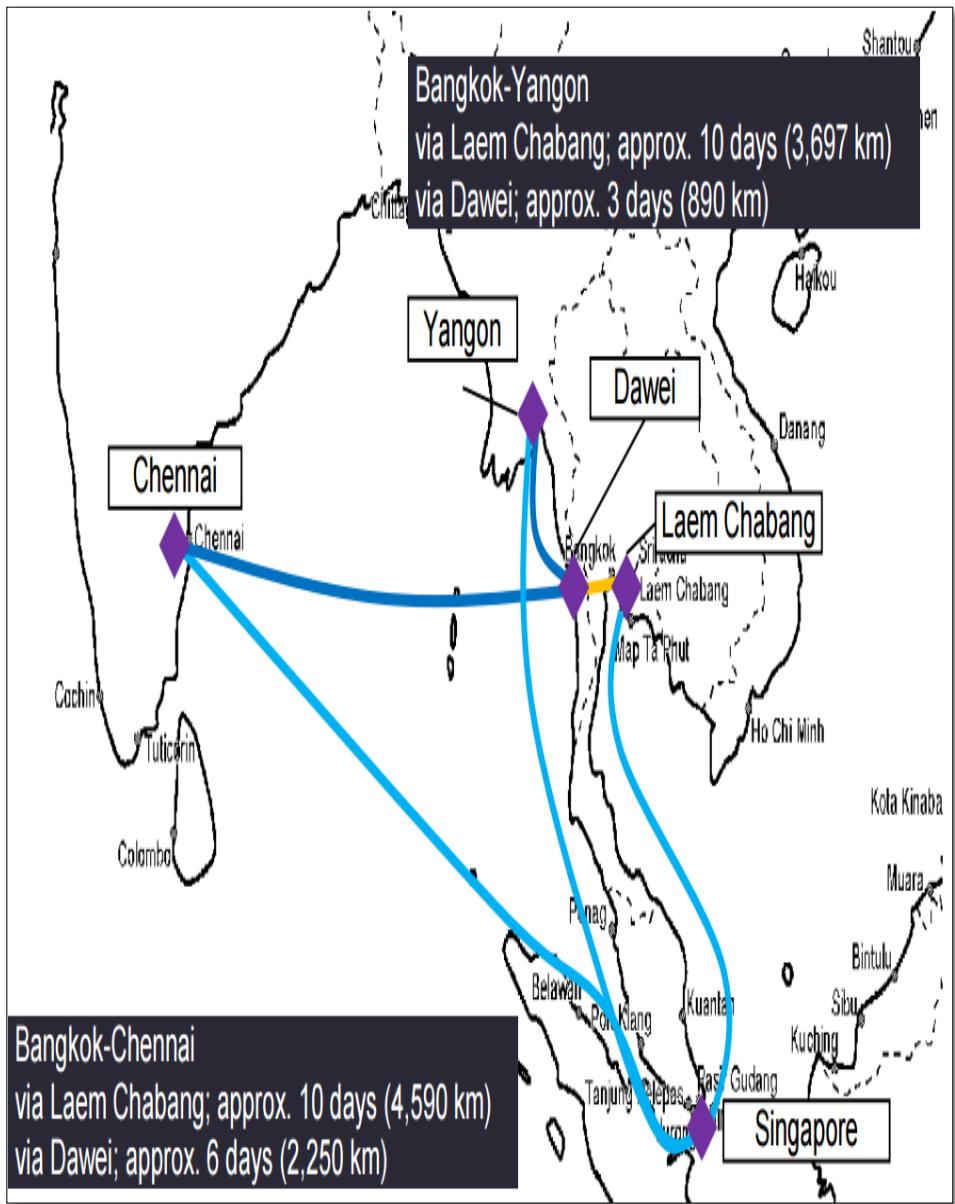
- Opportunities for mining sector - undiscovered oils and minerals in Arctic Ocean
- Future new shipping line business if NST becomes a commercial maritime route
- Potential for infrastructure investments



Threats

- Hazards of icebergs and susceptible to adverse weather conditions
- Based on long-term forecasts, NSR can only become real navigation routes, only if significant climate changes occur, resulting in unstoppable ice melting in the Arctic

3 Dawei – Laem Chabang Linkage (Potential alternative)



- Great Mekong Subregion (GMS) opens another new gateway between East Asia and Western region. Based on Economic Intelligence Center (2015), GMS will eliminate about 2,000km, shorten 3-5 days and reduce 30% in the transportation costs compared to passing through the Strait of Malacca (approximately 4,500km). The ports involved in GMS are Laem Chabang port (Thailand), Sihanoukville (Cambodia) and Ho Chi Minh City port (Vietnam).
- Dawei deep seaport will be a crucial link to this alternative route. It located at western of GMS, facing the Andaman Sea and 200km away from the Gulf of Thailand.

Source: Study on business possibility of the Dawei Development Project in the republic of Myanmar in FY2012



Source: phys.org

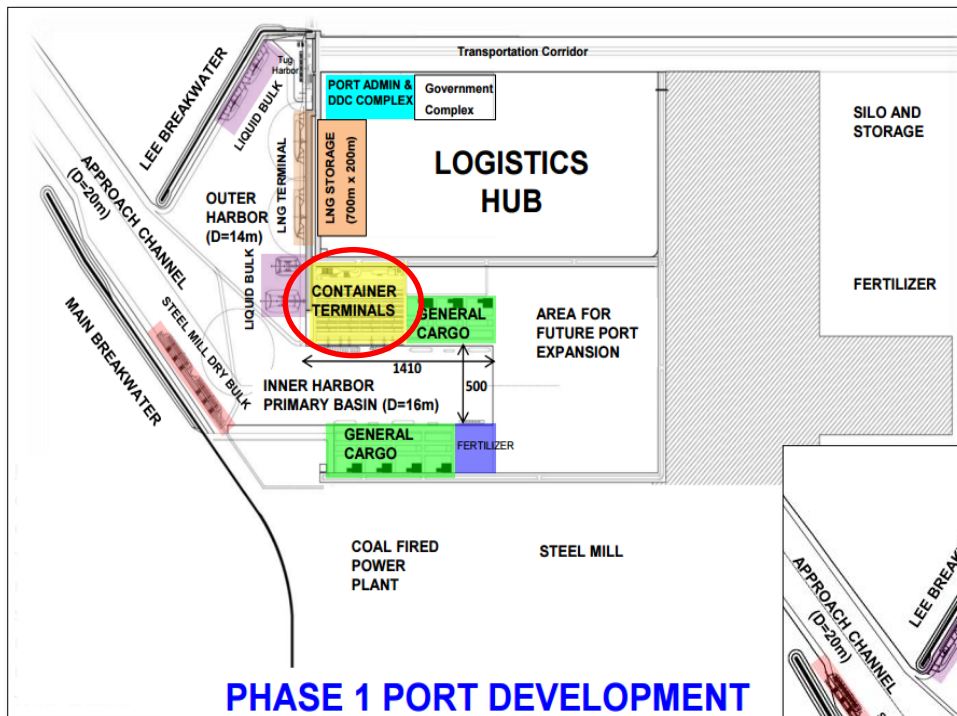


Note: Refer to appendix for the whole plan and layout

Source: Dawei Project Overview and Work in progress (July 2011)

- North port will be developed in phase 1 for mixed-use. Phase 2 located at South port and only for dry bulk (coal and iron ore). Construction of middle port (phase 3) depends on future demand from overall Dawei Special Economic Zone (DSEZ).
- Initial plan was changed due to the lack of funding. A small industrial zone (28.8 square-kilometres) will be established at current stage, which includes some factories, a small port (400 TEUs), a power plant and a residential area. To move forward into next phase (e.g. deep-sea port), Myanmar government indicated that it will depend on overall results from the small industrial zone.
- Initial estimates indicate that this port can handle 40 million ton of steel, 25 million ton of coal, 35 million ton of liquid cargo and 3.2 million TEUs¹. Ultimately, the container's capacity plan will expand till 12 million TEUs.

Dawei Deep Sea Port project



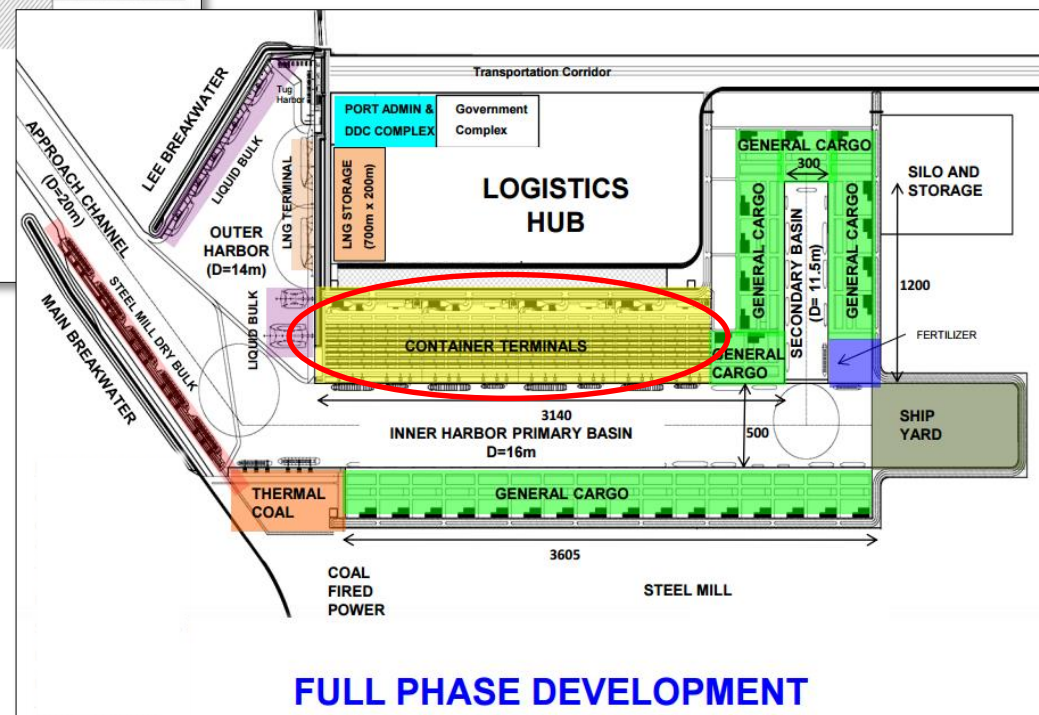
PHASE 1 PORT DEVELOPMENT

Number of Berths

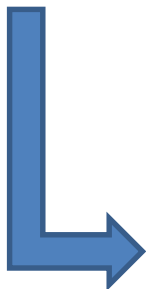
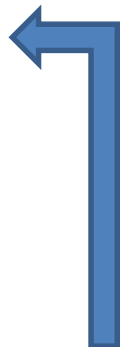
- *Containers: 2
- General Cargo: 7
- Thermal Coal: 0
- Fertilizer: 1
- Steel Milk Dry Bulk: 2
- Liquid Bulk: 5
- LNG Berths: 1
- Total = 18 Berths**

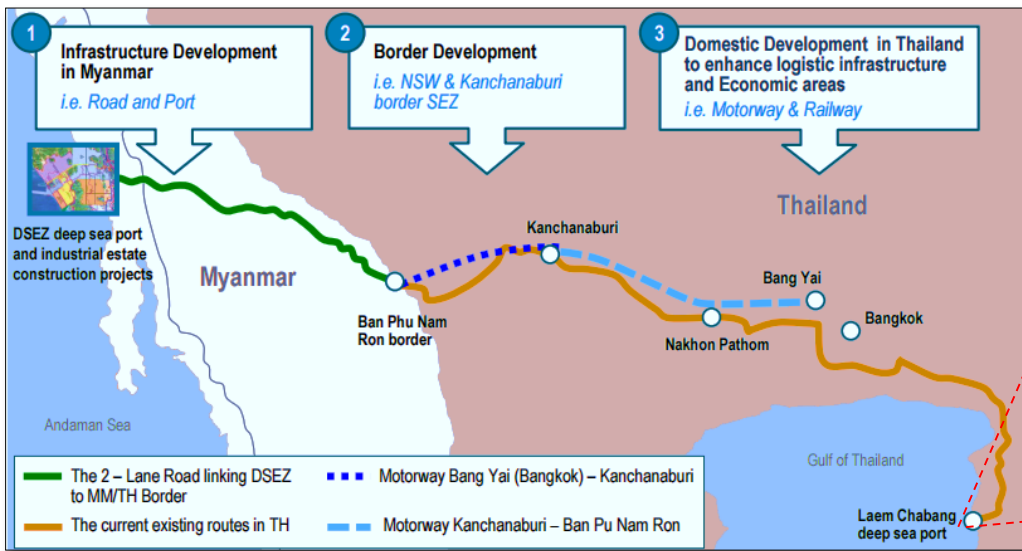
Number of Berths

- *Containers: 8
- General Cargo and Steel Billets: 28
- Thermal Coal: 2
- Fertilizer: 2
- Steel Milk Dry Bulk: 5
- Liquid Bulk: 8
- LNG Berths: 2
- Total = 55 Berths**



FULL PHASE DEVELOPMENT





Source: NESDB



Source: Minister of Industry

- Laem Chabang Port is the largest port in Thailand and also ranked as 22nd in world container ports in 2016. Laem Chabang Port's capacity is 10 million TEUs. In 2016, it handled about 7.06 million TEUs. Imports and exports (in term of TEUs) contributed nearby 99% in Laem Chabang port's activities. Not from transshipment activities.
- The road distance between Dawei port and Laem Chabang is about 475km. In Thailand, road connectivity between Laem Chabang port and Myanmar's border had already been completed.
- In Myanmar, the two-lane road about 130km from Dawei to Thailand's border is contracted to Italian-Thai Development (ITD) and expected to complete by 2023.
- According to Thailand's "Eastern Economic Corridor Development project" (2017), Laem Chabang port will proceed to Phase 3, which expands the capacity up to 18.1 million TEUs, with an estimated cost about US\$ 2.5 billion.
- Based on past expansion result, Phase 4 has the potential to increase the port capacity to 24 or 26 million TEUs.

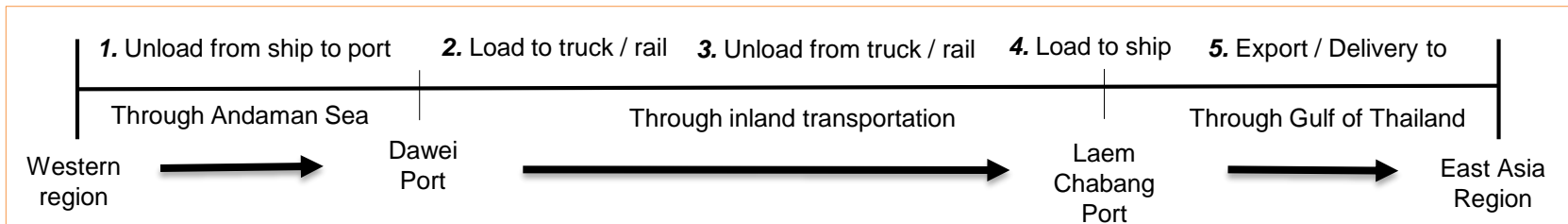
“Dawei – Laem Chabang Linkage (potential alternative)”

Limitations / Problems

- DSEZ faces a number of issues:
 - ❑ Environment issues: A vast area of mangrove forest was destroyed, destruction of ecosystem.
 - ❑ Social issues: During the construction of roads, ITD destroyed houses in Yaw Dut Thar Village, and without any consultation. There were unclear and insufficient compensations to local residents.
 - ❑ Nine projects handled by ITD had been stopped in 2013 due to financial crisis and complaints by the communities.
 - ❑ Other issues include corruption, land tenure, human right issues.
- Railway at Laem Chabang port is only connected up to Bangkok. Other destinations’ cargoes must go by land transport.
- This route is very inconvenient as it involves multiples loading and unloading as illustrated below:

Current status

- In March 2017, Thailand has offered a soft loan to Myanmar for constructing and upgrading the two-lane road from DSEZ to Thailand’s border. No announcement yet whether Myanmar accepts or rejects the offer.
- Myanmar government is still looking for foreign investors for the DSEZ’s industrial area.
- In May 2017, Laem Chabang port phase 3 is in the process of Environment Impact Assessment (EIA) and will be completed by end-year. If EIA is approved, the project expansion will began in early 2018.
- According to Railway Pro (2016), the double-tracking railway from Kanchanaburi (Thailand-Myanmar border) to Bangkok has been delayed as the feasibility study for the project has not been completed.



SWOT analysis: Dawei – Laem Chabang Linkage



Strengths

- Direct access to the Andaman Sea and Indian Ocean, serving China and India; regional connectivity for South Asia-Southeast Asia-East Asia
- Reduce dependence on congested Straits of Malacca; shortened trade route (distance from a factory in Vietnam exporting to India is reduced from 4,200 km to 3,500 km)
- Strengthening economic cooperation, trade and development



Weakness

- Inconvenient as it involves multiple of loading and unloading activities.
- Slow progress due to insufficient investment in Dawei development project'
- Lack of business support services, i.e finance and institutional infrastructure
- Lack of governance



Opportunities

- Strengthening the rural development
- Potential as a regional hub for multimodal transportation by passing Straits of Malacca
- Investment opportunities in natural resources, infrastructure, property development & energy
- Large potential for industrial and global supply chain among ASEAN member states; trading/distributing to India, Middle east and Africa regions.



Threats

- Political instability
- Land tenure and human right issues
- Threat to fishing industry due to large scale shipping activities
- Environment issues
- China's growing power dominance

4 Thailand – “Kra Canal” (potential alternative)



Source: Picsora



Source: LPAC

- The idea of the Kra Canal is to defuse any danger or pressures from the anticipated congestions of Straits of Malacca in decades to come.
- The plan involves building the canal at the narrowest part of Thailand peninsula, to directly connect the Gulf of Thailand with the Andaman Sea. With a depth of 33 metres and width of 500 metres, the Kra Canal can potentially accommodate vessels up to the size of ULCC (ultra large crude carrier: DWT size = 320,000 – 550,000) and possibility of two lane traffic.
- Such enormous construction will take at least 10 years, with an estimated cost of US\$28 billion

- Kra Canal has the potential to be a shipping hub for Southeast Asia. All sea shipping to East Asia can save up to 72 hours of sailing time with a shortened 1,200km distance. Containerships plying between Indian port and Shanghai, for example, can cut-off 2 days from the 11-day journey.
- The idea of Kra Canal will definitely make a dramatic revolution in Southeast Asia, which will have impact on Malaysia’s, Singapore’s and Indonesia’s ports business.
- For Indonesia, the Lombok Strait will be affected since the deep Kra Canal is able to cater for large international ships.

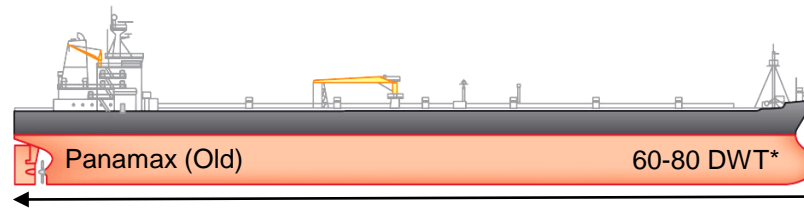
Maximum size of ship passes the canal: Comparison between Panama, Suez Canal, Strait of Malacca and Kra Canal

Panama Canal Max

Length 965ft

Width 106ft

Draft 39.5ft

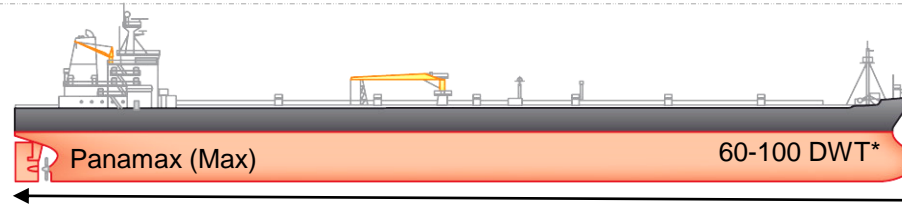


New Panama Canal Max

Length 1200ft

Width 161ft

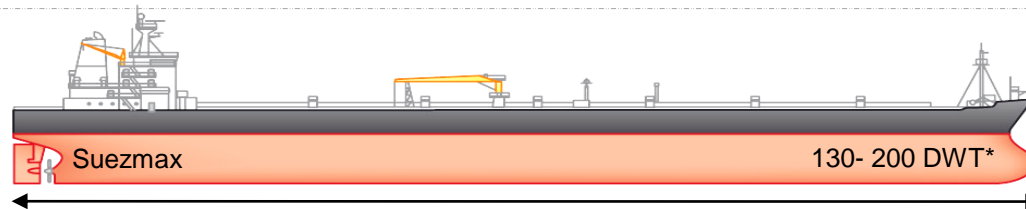
Draft 49.9ft



Suez Canal Max

Width 164ft

Draft 66ft

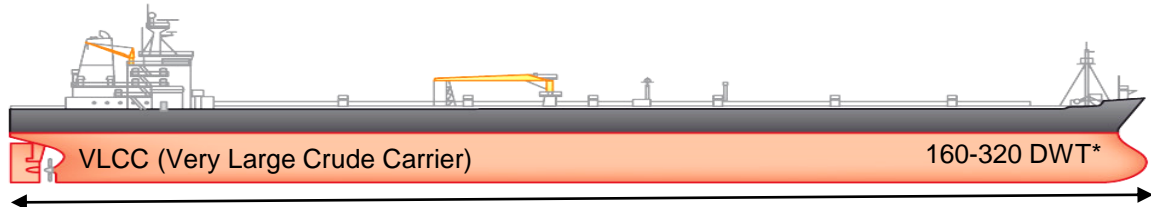


Strait of Malacca Max

Length 1312ft

Width 193ft

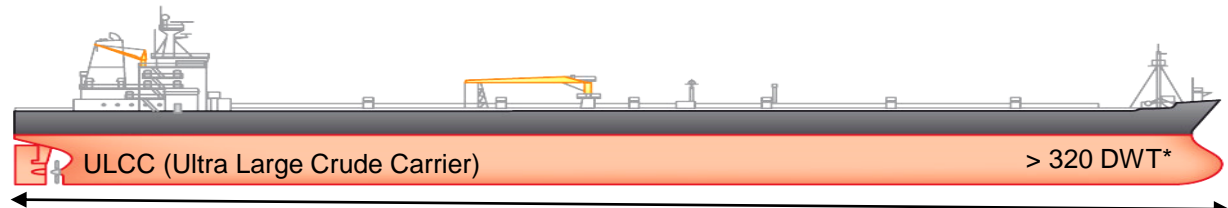
Draft 82ft



Kra Canal **

Length 1361ft

Width 206ft



Note: * thousand DWT **Based on to Journal of Shipping and Trade (2016), it allow up to ULCC
Source: Energy Information Administration (EIA), worldoceanreview.com, vesseltracking.net, SERC

Shipbuilding – The tanker market

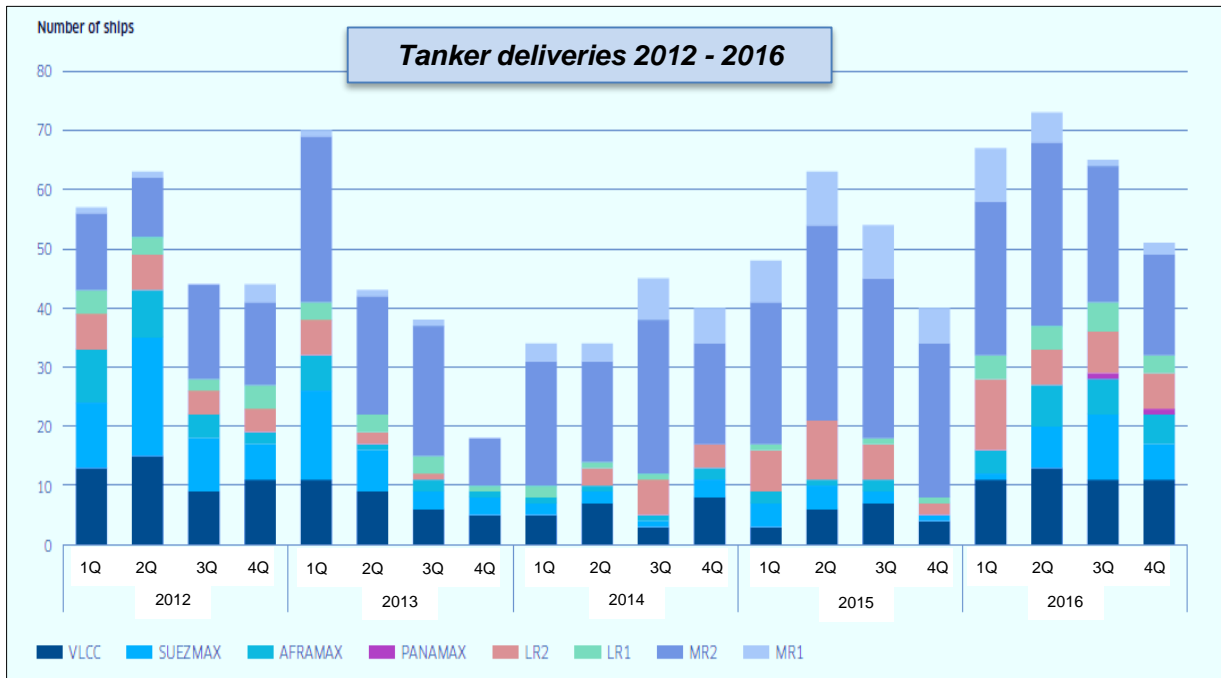
- In 2015, about 88% of in-service tankers in the sea were from sized below VLCC level. The number of ULCC in-service was very low (53 units) compared to VLCC (598 units) in 2015.
- The new ship orders, especially VLCC, Suezmax, Aframax and LR2* achieved high records every year from 2012 and 2015. However, crude production and steel production cuts had a greater impact on ship orders in 2016. In 2016, 97 of large crude tankers (VLCC to Panamax) were delivered. MR2 tankers (45,000 – 54,999 DWT) had mostly delivered in market from 2012 to 2016.

World Tanker Fleet in Profile (As of January 1, 2016)		
Type of Ships	In Service	
	Ships	% of Share
Handy Size	3,609	59.3
Panamax	408	6.7
Aframax	918	15.0
Suezmax	499	8.2
VLCC(160-320dwt)	598	9.8
ULCC (>320dwt)	53	0.8
Total	6,085	100.0

Source: Clarkson Research

New orders 2012 to 2016					
N° of ships	2012	2013	2014	2015	2016
VLCC	20	41	40	60	17
Suezmax	9	5	48	62	18
Aframax & LR2	22	68	28	99	18
Panamax & LR1	3	2	33	32	7

Source: BRS Group Annual Review 2017



Note: *LR = Long Range, MR = Medium Range Source: BRS Group Annual Review 2017

Possible reasons for low usage of ULCC:

- **Long depreciation period** – From the Panamax to VLCC, the average age was about 10 years. The adoption of ULCC tanker may incur many costs such as economic waste and compliance cost.
- **Inconsistent crude oil supply** – OPEC and non-OPEC producers agreed to cut output in 2017. There is limited supply, which put a risk of maximizing the size capacity.
- **Custom built terminals** – Not everywhere of ports have the facilities or terminals to handle ULCC tanker
- **Inflexibility demand** – ULCC are mainly for very long distance transportation of crude oil such as from Gulf to Europe, Asia and North America, which can achieve the economies of scale.



“Kra Canal”

Limitations / Problems

- The savings of three days and 1,200km may not make significant impact compared to the Panama Canal, which cuts about 12,000km (save 14 days or 2 weeks) to bypass South America. Suez Canal shortens the distance by 10,000km (save 10 days) between Europe and South Asia.
- In 2016, Thailand recorded a high global terrorism index about 6.71¹. Coupled with its domestic political instability, this may raise the risk of foreign investors deferring their plans to invest in Thailand.
- Kra Canal project had been rejected a few times (in 1677, 1822, 1897, 1946) by Thailand Kings. Possible reasons include conflict and tension at Thailand’s southern area; and environmental concerns affecting local people and destroy the marine environment.

If Kra Canal shaped up:

- Create new opportunities for the neighbor countries located close to the new route, i.e. accelerate development for Cambodia, Myanmar and Vietnam. Reduce the economic disparity among ASEAN member states.
- Increase intra-ASEAN trade.
- Generate positive multiplier effects, i.e. create about 20,000 to 25,000 jobs and boost many industries in Thailand
- May impact Singapore and detrimental to the strategic ports located along the Strait of Malacca as the canal allows bigger ships to bypass the congested Straits of Malacca.
- The canal could become an important part of China's Maritime Silk Road, and potentially positioning Thailand as a new logistic game player in the region

Latest developments

- In 2015, a China's company completed a feasibility study on Kra Canal but was turned down by Thailand government. However, China is clearly ready for this project once it gets clearance from the Thai government and Thailand King to revive the Kra Canal project.
- According to LPAC (2017), the new King of Thailand, Vajiralongkorn Rama X, has shown interest to proceed with the Kra Canal project. This may change the game plan since there is less pressure from the royalty.
- China has now become the potential game changer, who can possibly turns Kra Canal's proposal into reality in the 21st century.



Source: KeLaYunHe.com

SWOT analysis: Thailand – “Kra Canal”



Strengths

- Reduce dependence on congested Straits of Malacca
- Accommodate vessels size up to ULCC
- Save up 3 days of sailing time
- Reduce 1,200km distance between Indian Ocean and South China Sea
- Thailand has full authority to set canal policy, unlike Straits of Malacca which has joint-jurisdiction



Weakness

- Enormous construction cost (US\$28 billion)
- Long construction period (10 years)
- Hardly achieve competitive pricing and full capacity in the early stage
- Take time to achieve international logistics standard



Opportunities

- Increase intra-ASEAN trade
- Spur foreign investment
- Positive multiplier effect on Thailand’s economy and industries
- Accelerate development for CLMV countries and enhance linkages with other ASEAN members



Threats

- Increase Thailand’s financial burden such as military expenses
- Risk on local political stability
- Destruction on marine environment

Comparing “Kra Canal” with Straits of Malacca

Element	Straits of Malacca	Kra Canal
Distance	<ul style="list-style-type: none"> • 1,200 km longer 	<ul style="list-style-type: none"> • 1,200 km shorter
Journey time	<ul style="list-style-type: none"> • Up to 5 days longer 	<ul style="list-style-type: none"> • Journey will be reduced by 2 to 5 days
Traffic system	<ul style="list-style-type: none"> • High congestion 	<ul style="list-style-type: none"> • Alternative route to avoid congestion in Straits of Malacca
Size	<ul style="list-style-type: none"> • 805km long, 65-250 km wide, and 37 m deep (south) / 200m deep (northwest) 	<ul style="list-style-type: none"> • The Canal will be two way, 102km in length, 25m deep, and 400 m wide (almost double the broadest part of Straits of Malacca).
Environmental pollution	<ul style="list-style-type: none"> • Higher levels of marine and air pollutions 	<ul style="list-style-type: none"> • Create environmental problems due to dredging and development activities (marine ecosystem) • Potentially reduce global warming (air pollution)
Control and monitoring system	<ul style="list-style-type: none"> • Shared with three countries (Malaysia, Indonesia and Singapore). • Difficulties in making decision on some issues 	<ul style="list-style-type: none"> • Entirely under Thailand’s sovereignty in setting up the canal policy without involving other countries
Vessel size	<ul style="list-style-type: none"> • Up to Malacca’s maximum size 	<ul style="list-style-type: none"> • Up to ULCC size. But may not be a huge advantage looking at the low usage

Section 4

Con**clu**sion

A magnifying glass with a black handle and a silver rim is positioned over the word 'Conclusion'. The lens of the magnifying glass is centered over the letters 'clu', which are significantly enlarged and appear bolded, while the rest of the word 'Conclusion' is in a standard font size.

Summary of evaluation: Straits of Malacca vs Alternative Routes

- **Major states in the West coast of Peninsular Malaysia** such as Malacca, Penang, Selangor and Johor **located along the Strait of Malacca have the highest maritime potential**. Except for Port Tanjung Pelepas (PTP) as a container port, all other major ports in Malaysia are multi-purpose ports.
- The **Strait of Malacca will remain the preferred shipping route from the Indian Ocean to the Pacific** and the traffic is expected to double over the next decade.
- **Merchandise trade** (crude oil and cargo) that passes through the Strait of Malacca is expected to continuously growing due to:
 - Japan is having negotiations of Japan-EU Economic Partnership Agreement, RCEP and Japan-GCC (Gulf Cooperation Council) Free Trade Agreement.
 - Under Belt and Road (B&R) initiative, China is building trade and investment relationships with the world and hence, encourages the use of Renminbi (RMB) in trade settlement
 - Korea-GCC FTA (Free Trade Agreement)
 - RCEP is under negotiation
 - The potential FTA between Africa region and Asia region.

Summary of evaluation: Straits of Malacca vs Alternative Routes

- While the crafting of alternative routes are intended to ease growing traffic congestion in Straits of Malacca, **general consensus views** seem to suggest otherwise (**more of balance of economic and security powers in the Strait of Malacca**), pointing towards the lack of strong economic justification to bypass the Strait of Malacca.
- Even on grounds of providing safer and more secure energy transportation, there are no compelling reasons to have alternative routes.
 - The **Trans-Siberian Railroad and Northern Sea Route (NSR)** are poised to shorten travelling time compared to the Strait of Malacca. Both routes still have a long way in enhancing connectivity and improving services, hence East Asia countries are barely considering using it.
 - For **Dawei-Laem Chabang**, the imbalanced infrastructure development is very obvious in both connecting countries. Even if Thailand is ready for the linkages, Myanmar may need another 10 years to achieve a full phase of development. Moreover, if this route is ever being adopted, shippers will have to worry about different custom processes and the efficiency of transferring goods involving different countries and between modes, i.e. sea and land routes.

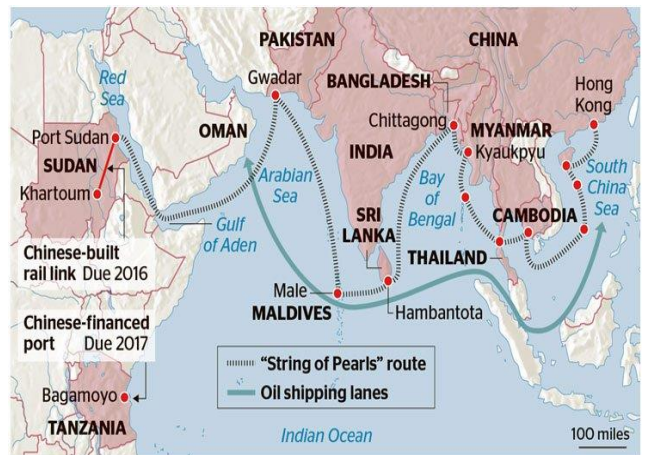
- For **Kra Canal project**, while it poses a threat to the Strait of Malacca and Singapore, this project will burden Thailand's fiscal budget. The cost of Kra Canal is substantially more than what Thai cabinet had approved for all its infrastructure projects (US\$25.2 billion) in 2017. Building Kra Canal involves loss of opportunity costs whereby many other development projects will have to be forgone to accommodate this mega-sized project.

- On the contrary, **China has high interest on the Kra Canal. Firstly**, Chinese oil companies have initiated key oil and gas pipeline connections between Myanmar and Yunnan (first RHS picture), and **secondly**, Kra Canal complements part of the Belt and Road Initiative (second RHS picture). Kra Canal is a penny investment for China when compared to the cost of Nicaragua Canal between US\$40 billion and US\$50 billion (*refer to Appendix*). Kra Canal will certainly provide a strategic location for China to ease perceived geo-politics influences of the US in South China Sea.

- Furthermore, with seven Chinese ports listing in the world's top 10 container ports, Kra Canal will help to strengthen China's position as the world's leading trading nation.



• Source: Mizzima



• Source: Mizzima

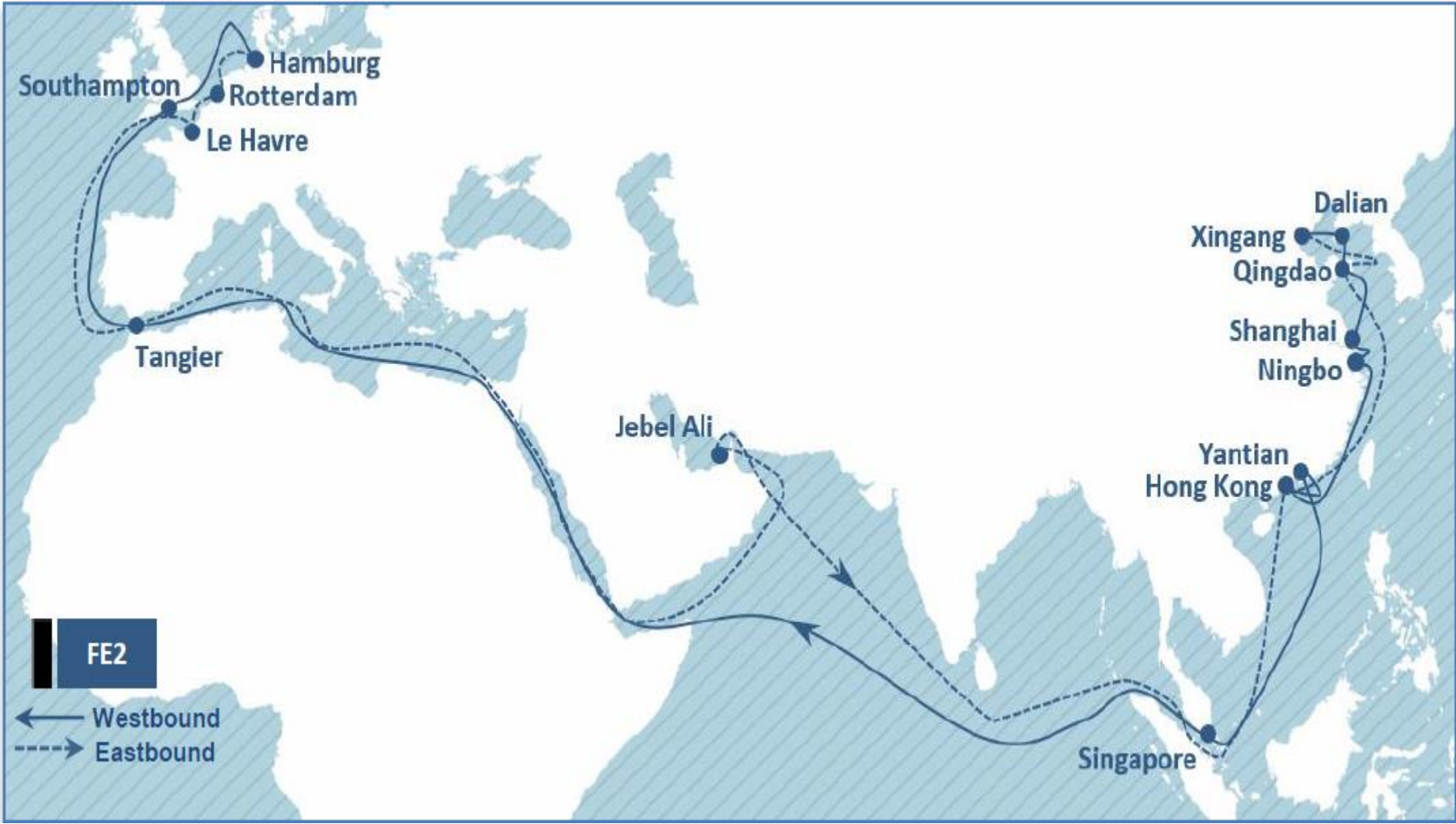
- From a maritime perspective, these **alternative routes would bring some impacts** and may trigger new dynamics to the conventional shipping traffic and trade.
- **Questions have been raised on the economics of shipping and industry, financing, environment and geo-political while assessing the viabilities of these alternatives.** For example, if the prospects of Kra Canal is so phenomenal, the question is why the plan hasn't come to fruition after decades long discussions in Thailand. These mega projects are ambitiously expensive and too difficult to ascertain the full impact, unless more details are made known.
- Other alternative shipping routes through the Indonesian archipelagic waters, i.e. Sunda Strait, Lombok and Makassar Straits, may have their advantages, but the viability as alternative routes remain doubtful. Conceivably, it is more rational to conclude that these routes undoubtedly can complement the present Straits of Malacca.
- It may be more tactical for the **stakeholders to invest in capacity building of existing ports and enhancing security** in the Strait of Malacca as opposed to spending astronomical costs on the unknown frontier.

- While the Kra Canal will alter the conventional maritime landscape along the Strait of Malacca, and re-shape the Southeast Asia's accessibility to the global trade, the maritime businesses should remain dynamic with investments in strategic locations whilst waiting for the fruition of this new plan.
- For **Malaysia**, the **government and ports operators have to remain vigilant and be prepared to deal with any possible outcomes should the alternative solutions become reality**. Developmental and expansion works at existing terminals are already on-going to ensure that these ports remain highly competitive to meet the growing demand.
- The developments of ASEAN Ports will be addressed in Part II of this research paper.

Appendices

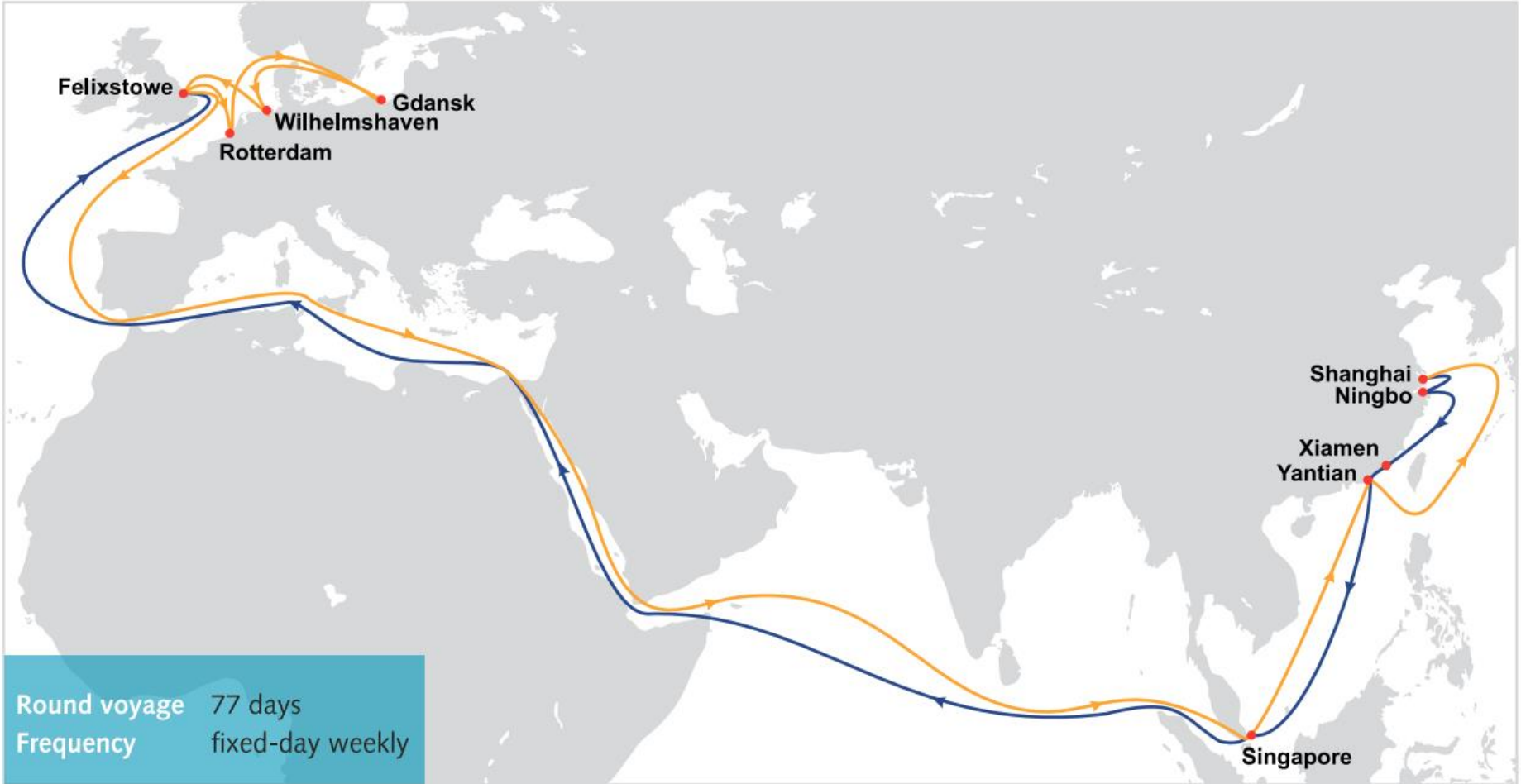
- **FE2 – Far East Loop 2 (THE Alliance)**
- **LL1 – Asia-North Europe Loop 1 (OOCL)**
- **Nicaragua Canal**
- **Dawei Special Economic Zone (DSEZ)**

FE2 – Far East Loop 2



Source: UASC

LL1 – Asia-North Europe Loop 1



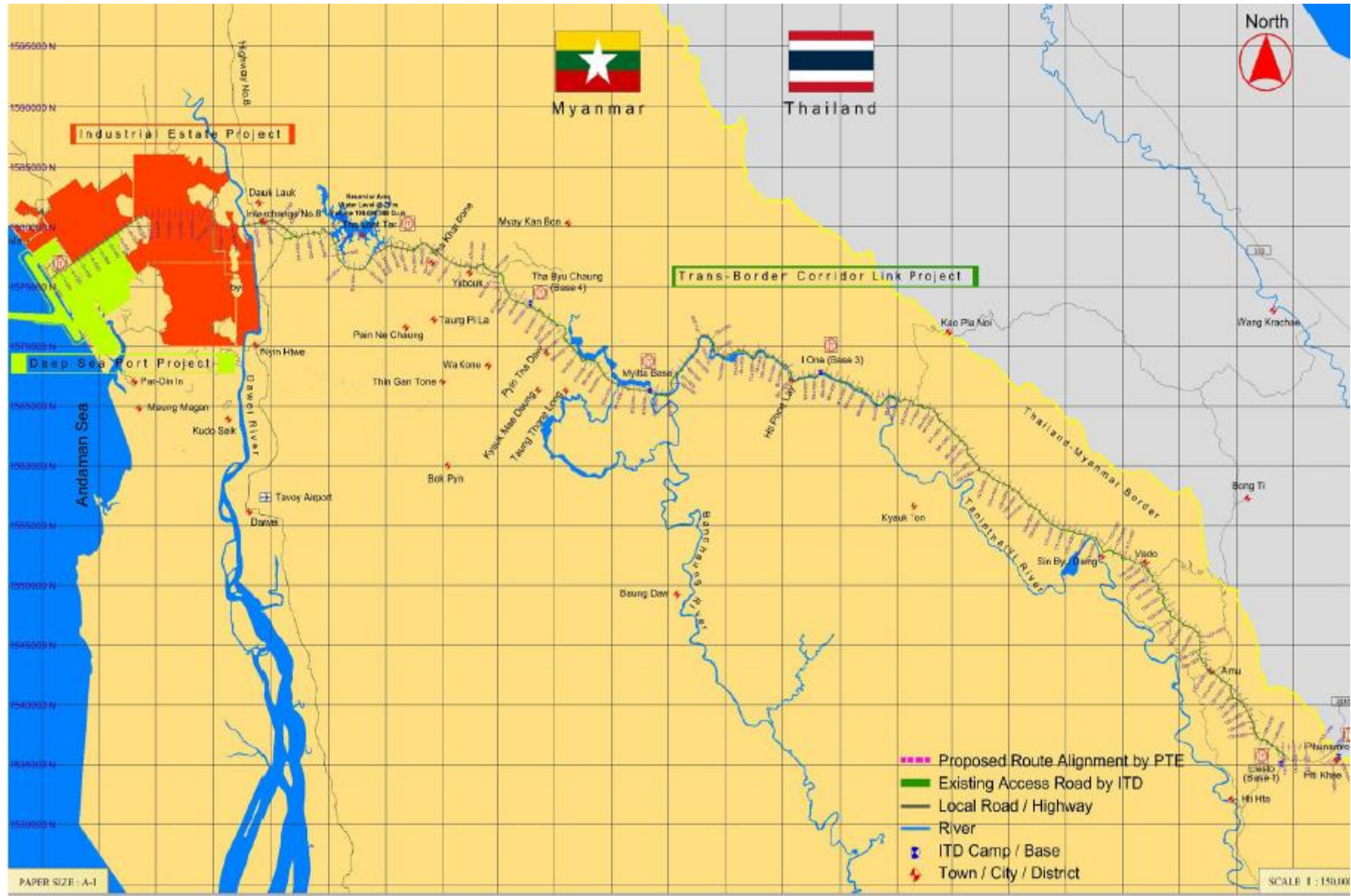
Source: OOCL

Nicaragua canal vs Panama canal



Source: BBC News

Dawei Special Economic Zone (DSEZ)



Source: Dawei Project Overview and Work in progress (July 2011)

Conceptual plan located Dawei Sea Port & Industrial Estate



Source: Dawei Project Overview and Work in progress (July 2011)

DSEZ – Tentative Project Schedule

Activity Description	Ori. Dur. Month	Start	Finish	Year												
				2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Initial Stage																
M.O.U. Signing : MPA - ITD	-	Jun-08	-	⊗ 12 Jun 08, M.O.U. Signing												
Preparation Stage																
Preliminary Site Survey & Soil Investigation	24	Jul-08	Jul-10	█	█	█										
Initial Environmental Examination	12	Jan-09	Dec-09		█	█										
Conceptual Plan	6	Jan-09	Jul-09		█											
BOT Agreement	-	Apr-10	-			⊗										
Mobilization	12	Jan-10	Dec-10			█	█									
Engineering Design & EIA	6	Jan-10	Jun-10			█										
Master Plan	7	Jan-10	Jul-10			█										
Bankable Feasibility Study	12	Dec-09	Oct-10			█	█									
Financial Close	12	Dec-09	Oct-10			█	█									
Construction Stage																
+ Construction Phase 1																
South Port	60	Jan-11	Dec-15				█	█	█	█	█	█				
Industrial Estate Road & Drainage Network	60	Jan-11	Dec-15				█	█	█	█	█	█				
Road to Dawei Airport	60	Jan-11	Dec-15				█	█	█	█	█	█				
Water Reservoir (93 Million Cu.m.)	60	Jan-11	Dec-15				█	█	█	█	█	█				
Water Treatment Plant	60	Jan-11	Dec-15				█	█	█	█	█	█				
Wastewater Treatment Plant	60	Jan-11	Dec-15				█	█	█	█	█	█				
Solid Waste Disposal System	60	Jan-11	Dec-15				█	█	█	█	█	█				
400MW Coal-Fired Power Plant	60	Jan-11	Dec-15				█	█	█	█	█	█				
Substation & Communication	60	Jan-11	Dec-15				█	█	█	█	█	█				
Border Entry Zone	60	Jan-11	Dec-15				█	█	█	█	█	█				
Road Link to Thailand (4 Lanes)	60	Jan-11	Dec-15				█	█	█	█	█	█				
Township	60	Jan-11	Dec-15				█	█	█	█	█	█				
+ Construction Phase 2																
Industrial Estate Road & Drainage Network (Additional)	60	Jul-13	Jun-18							█	█	█	█	█	█	
Open Channel Waterway Improvement	60	Jul-13	Jun-18							█	█	█	█	█	█	
Commercial Center	60	Jul-13	Jun-18							█	█	█	█	█	█	
Authority Center	60	Jul-13	Jun-18							█	█	█	█	█	█	
Public Recreational Area	60	Jul-13	Jun-18							█	█	█	█	█	█	
Road Link to Thailand Extension (8 Lanes)	60	Jul-13	Jun-18							█	█	█	█	█	█	
+ Construction Phase 3																
North Port	60	Jan-16	Dec-20										█	█	█	█
Industrial Estate Road & Drainage Network (Additional)	60	Jan-16	Dec-20										█	█	█	█
Rail Link to Thailand	60	Jan-16	Dec-20										█	█	█	█
Transmission Line to Thailand	60	Jan-16	Dec-20										█	█	█	█
Oil & Gas Pipeline to Thailand	60	Jan-16	Dec-20										█	█	█	█

Source: Dawei Project Overview and Work in progress (July 2011)



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谢谢
THANK YOU

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