社会经济研究中心

SOCIO-ECONOMIC RESEARCH CENTRE

SERC

Part 2

ASEAN's ports: Now and into the future

Statement of objectives

- Southeast Asian ports' strategic geographically positions for international shipping routes have greatly deepen the interconnected worldwide and become a crucial part of the global port system. A highly competitive and rapidly changing business environment requires the strategic planning and operation of ports to offer a unique position as seaports link.
- Southeast Asia ports need to keep pace with increasing international trade in the future, driven by the advent technology and digitalisation. Bigger and stronger intra-Asia trade will demand better, smart and efficient port services.
- While ASEAN member states work together to strengthen maritime transport linking their economies, their ports and leading terminals will have to be enhanced and remained competitive in terms of cost and delivery service to attract more traffic and shipping lines and services.
- In general, the quality of some ASEAN ports were perceived to be far below the world average and have not keep pace with strong throughput growth within the region. The widening gaps between the ports in ASEAN require their port authorities to adopt appropriate strategies to improve and the competitiveness of their ports.
- Singapore and Malaysia are the leading pack of ASEAN ports. Both Indonesia and Philippines need to improve their national maritime strategies. Vietnam is progressing rapidly with the development of new ports. Indonesia focuses on the development in Sumatra and is eyeing to secure seaborne trade in Strait of Malacca.

Scope of the study

The objective of this study is to assess ASEAN member states' main ports development and how they maintain their competitive strategic positions to retain and increase the penetration of shipping lines. It also analyses the potential impact of Sumatra's ports development, situated adjacent to Strait of Malacca. Special reference is made to Malaysian Ports: Challenges, pitfalls and opportunities.

- **Section 1:** Tracking of ASEAN ports development
- **Section 2**: Review ports development in Sumatra and its impact to Strait of Malacca
- **Section 3:** A critical look at Malaysian Ports: Challenges, pitfalls and opportunities
- **Section 4:** Conclusion

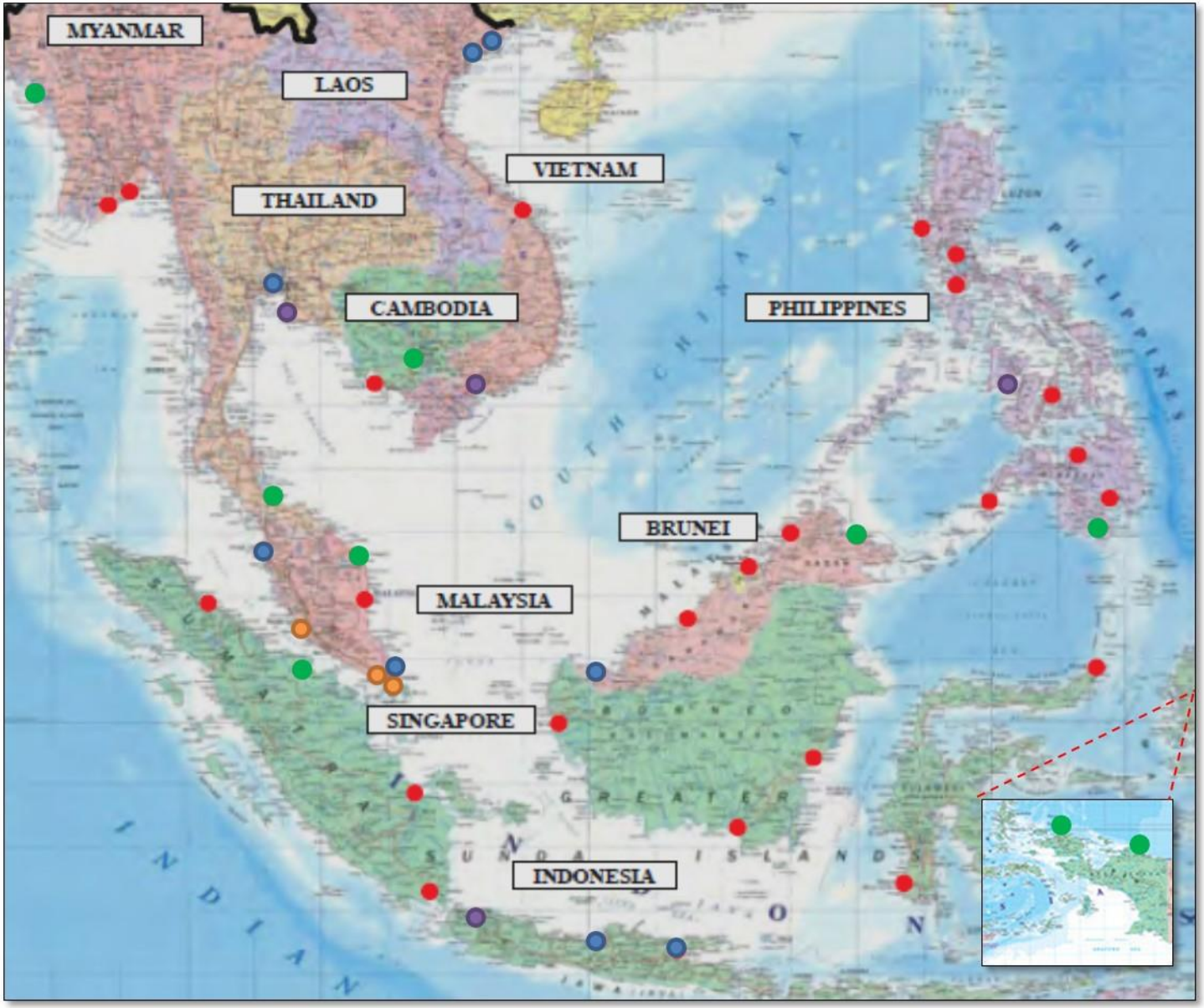
Section 1

Tracking of ASEAN ports development

How competitive are ASEAN ports?

- Southeast Asia (SEA) ports need to look beyond the boundary to meet the growing demand for sea transportation in keeping pace with increasing international trade and more connected global supply chain networks.
- The trends of increasing globalization, market and trade integration and containerization would continue to have profound influences on the development of seaports as the preferred international shipping routes.
- Improving ports and their accessibilities have the greatest potential to improve connectivity between South Asia and Southeast Asia. In SEA, sea trade makes up the bulk of international trade in value (%) and volume (%) terms. Increased connectivity will accrue to the catchment areas of those ports.
- Bigger and stronger intra-Asia trade will demand better and efficient container ports services. It is therefore ASEAN member states' governments have to continuously upgrade and expand their ports' capacities to best serve sea trade, which is closely associated with the expansion on intra-and interregional trade between South Asia and Southeast Asia.
- ASEAN ports – where are we now, where are we heading?

The scale and purpose of 47 designated ports in ASEAN



Source: ASEAN Maritime Transport Working Group

Notes :

3 — World class transhipment port serves as a hub of trunk line services.

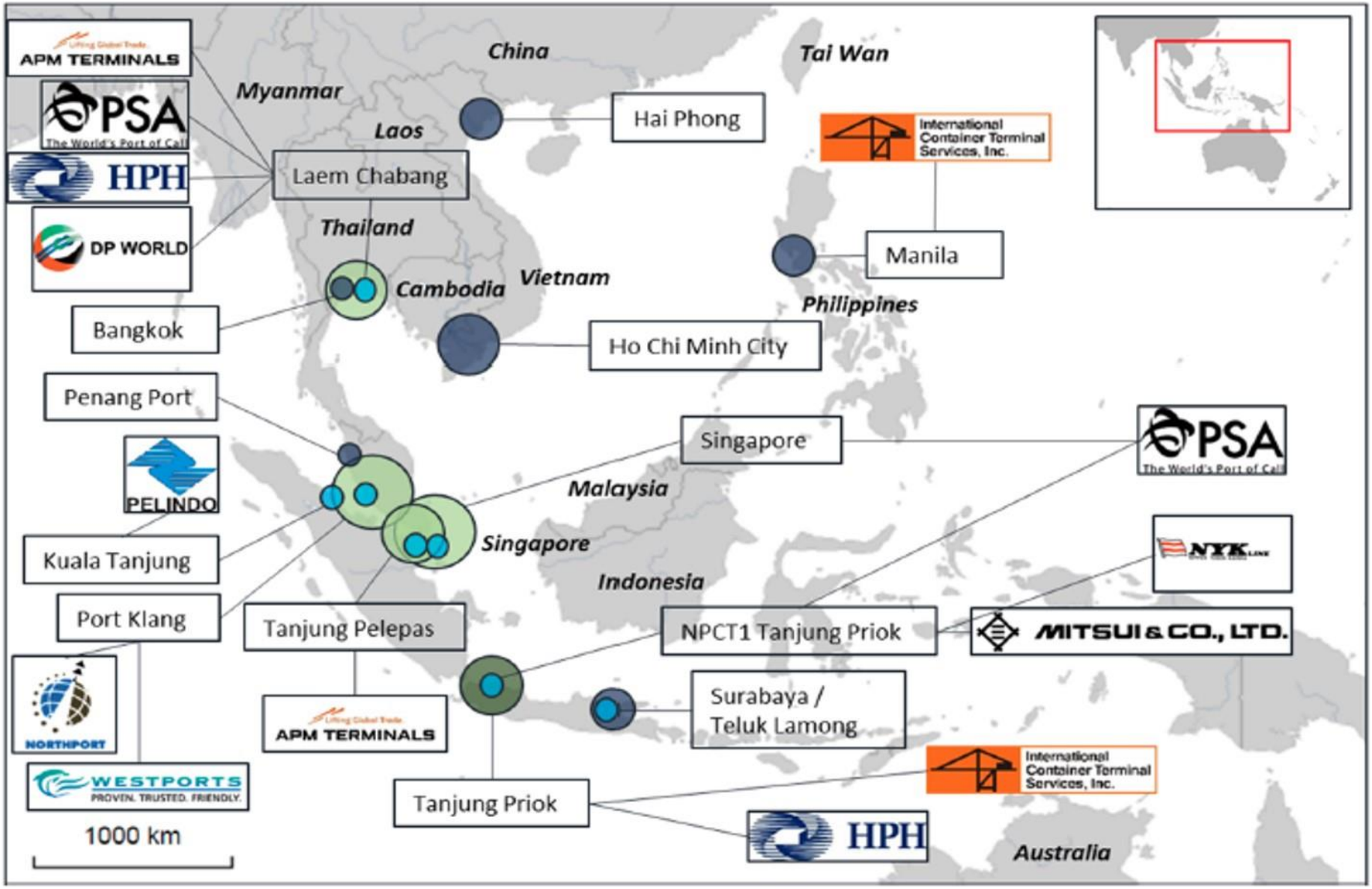
4 — World class port serves as a main gateway to their country

8 — Large scale port serves mainly for inter regional container shipping.

23 — Small scale port serves mainly for intra regional container shipping.

9 — Small scale port (terminals) mainly for coastal and/or sub-regional services.

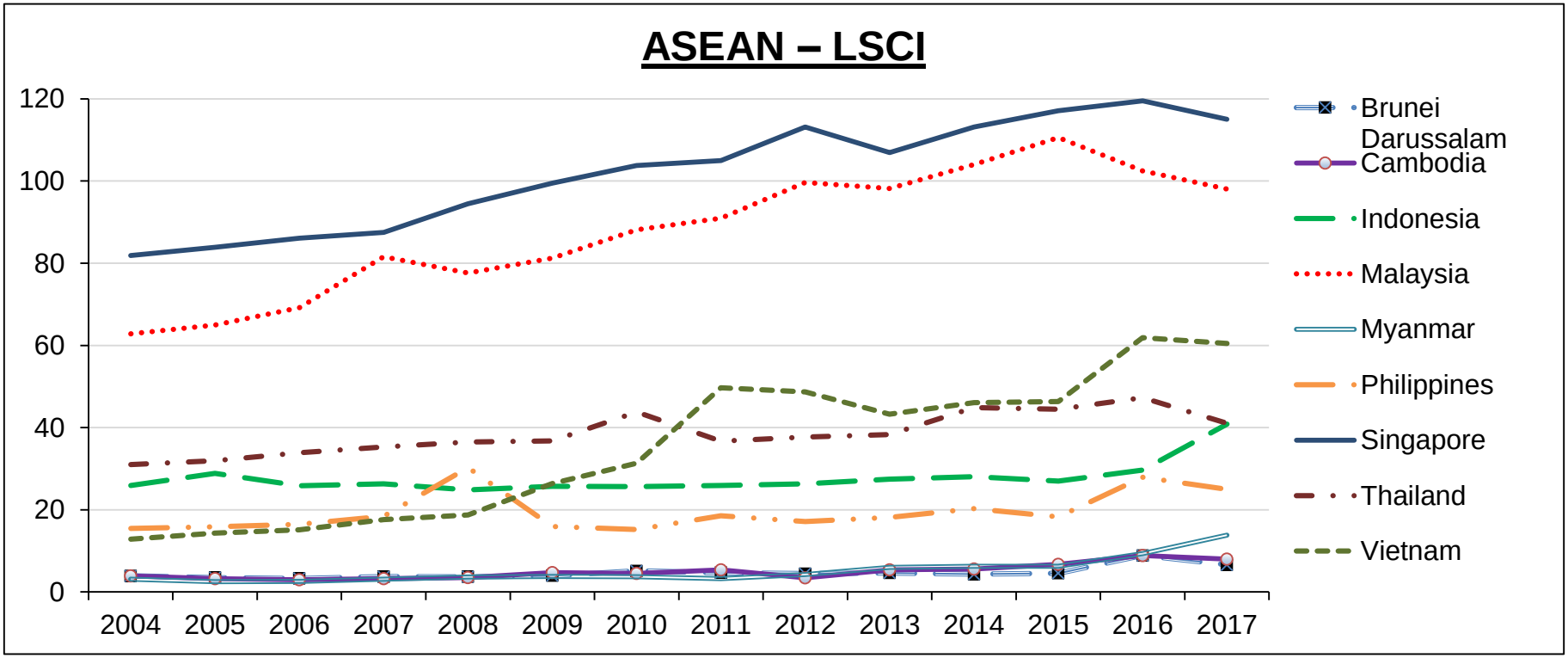
Major port operators in ASEAN region



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

ASEAN: Lack of shipping connectivity with world

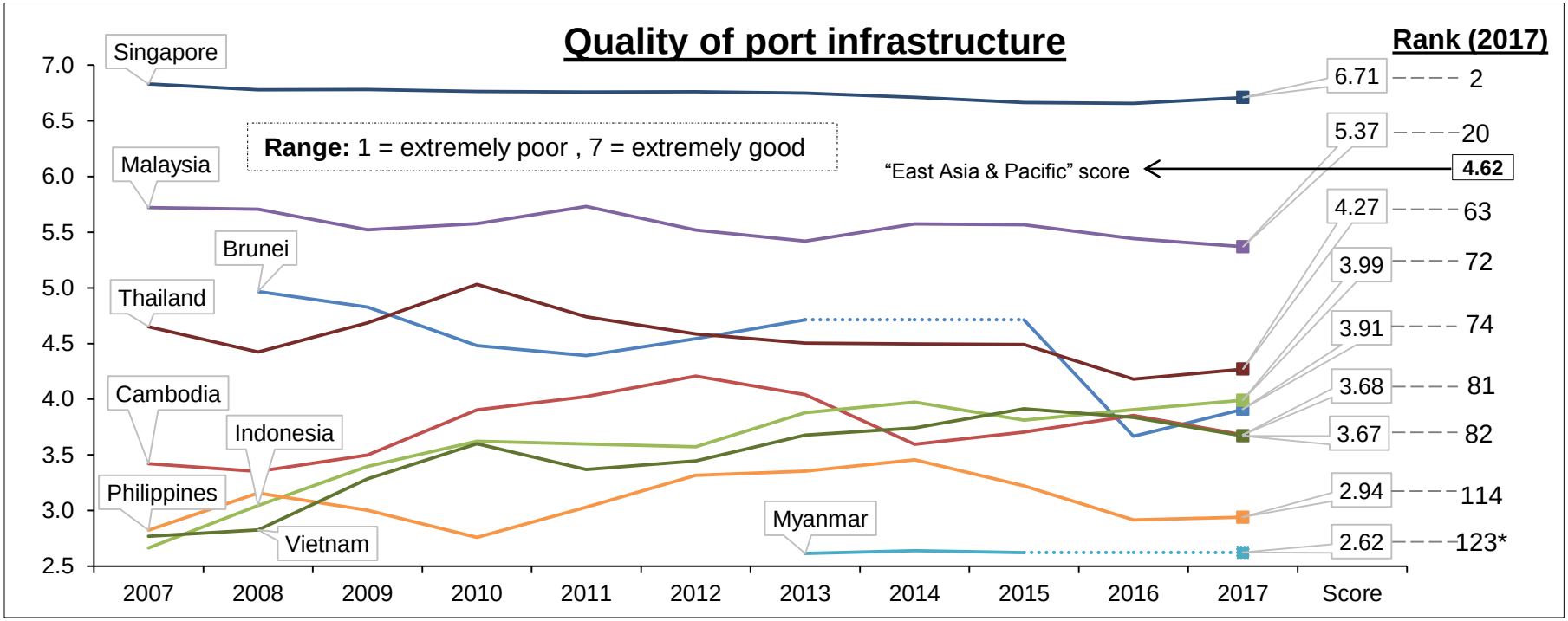
- The liner shipping connectivity index (LSCI) describes how well countries are connected to global shipping networks. The higher the index, the easier its accessibility to a high capacity and frequency global maritime freight transport system.
- In 2017, Singapore (a score of 115.07) and Malaysia (98.08) have established well-connected ports compared to other ASEAN members. Indonesia's LSCI improved significantly from a score of 29.62 in 2016 to 40.85 in 2017 due to increased foreign participation rate in the ports industry.



Source: UNCTAD

ASEAN: Disparity in ports infrastructure quality

- ASEAN has shown a disparity gap in the quality of ports infrastructure between developing and less developing countries.
- In 2017, seven out of nine ASEAN member states were below the average score of East Asia and Pacific. Singapore (ranks 2nd out of 138) and Malaysia (ranks 20th out of 138) remained as the best port service providers in ASEAN.
- Vietnam, Indonesia and Cambodia have made very good efforts to improve the quality of their ports infrastructure from 2007 to 2017.

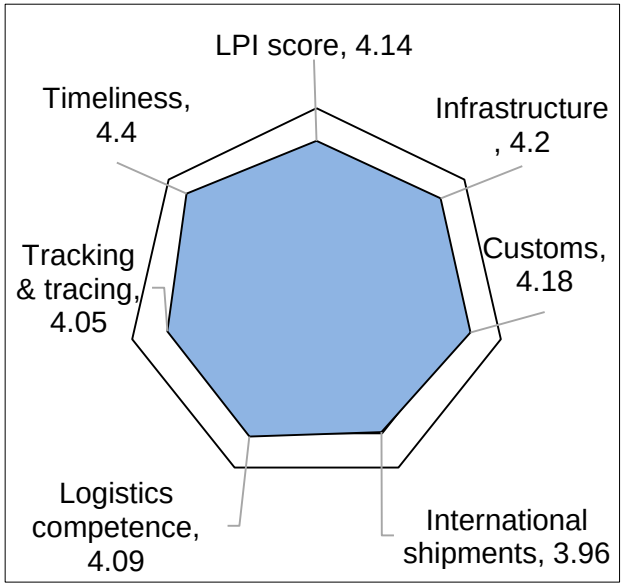


Note: Brunei data not available from 2013 to 2014; Myanmar data not available from 2016 to 2017
Source: Global Competitiveness Report

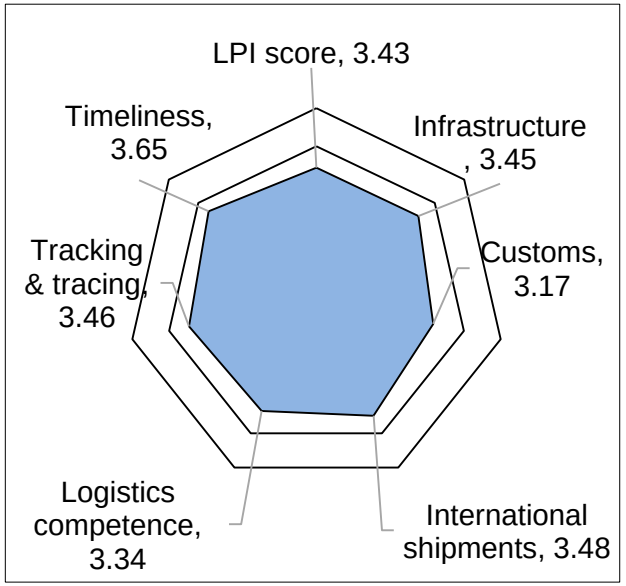
ASEAN: Widening gap in logistics performance

- Logistics Performance Index (LPI) measures a country's performance on trade logistics (*refer to appendix*). Singapore was ranked 5th out of 160 countries in 2016.
- Using Singapore as ASEAN's LPI benchmark, in 2016, both Malaysia and Thailand were slightly below the benchmark though there is a chance to close the gap over next few years if there are continuous changes in logistics policy to meet international standards.
- Other ASEAN member states' LPI indicators were lagging far behind that of Singapore, especially Myanmar has a low LPI score of 2.46, below the median score of LPI[1].

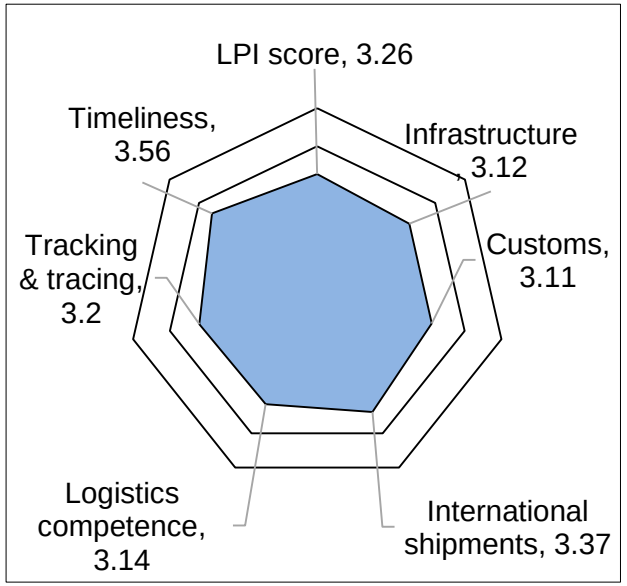
Singapore (LPI rank: 5th)



Malaysia (LPI rank: 32nd)



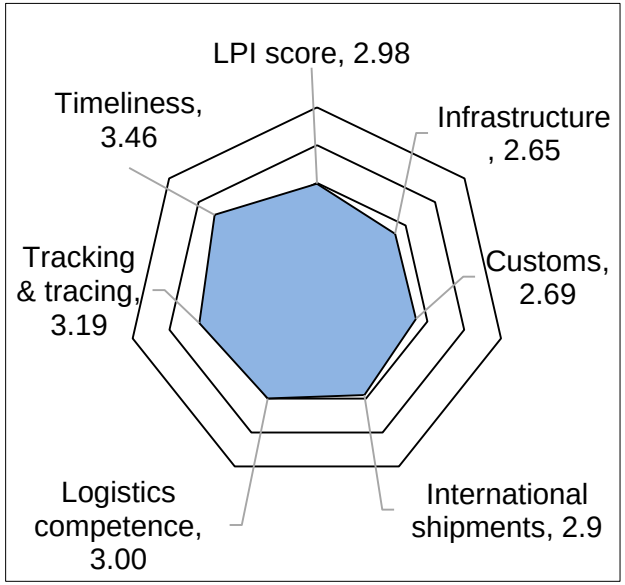
Thailand (LPI rank: 45th)



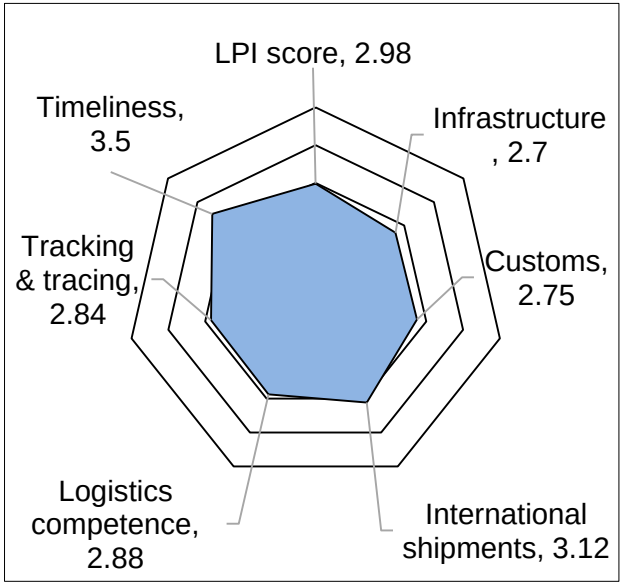
Note: 1= Range from 1 (worst) to 5 (best) ; East Asia & Asia Pacific score for – i.) customs = 2.98, ii.)Infrastructure = 3.02, iii.) International shipment = 3.08, iv.) Logistics competence: 3.07, v.) Tracking & tracing: 3.12, vi.) Timeliness = 3.54

Source: World Bank

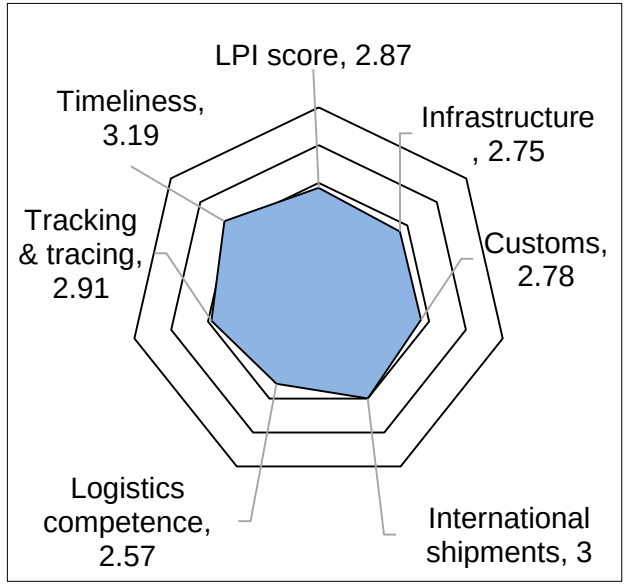
Indonesia (LPI rank: 63rd)



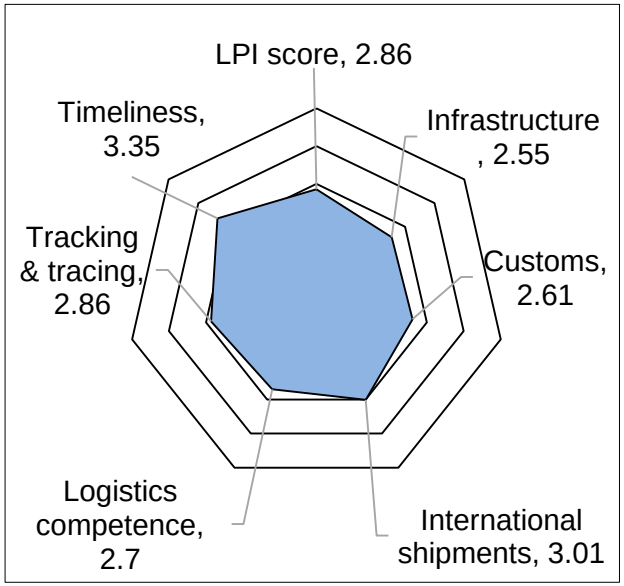
Vietnam (LPI rank: 64th)



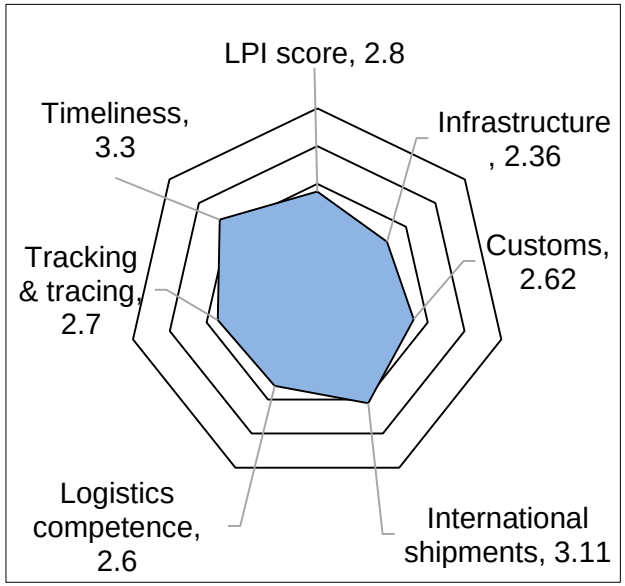
Brunei (LPI rank: 70th)



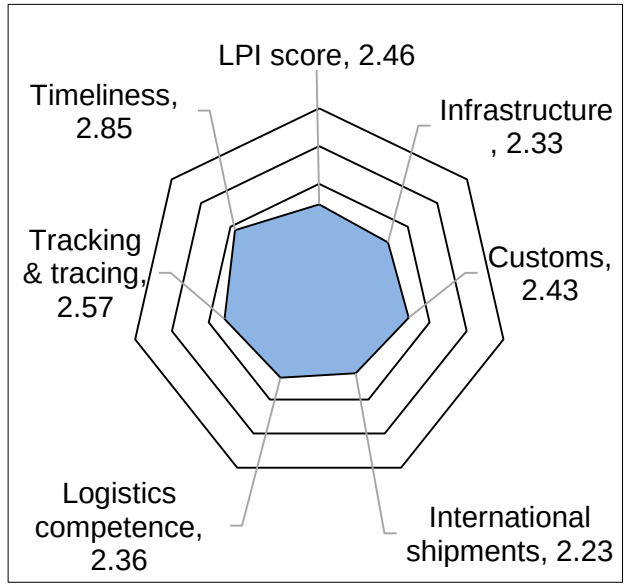
Philippines (LPI rank: 71st)



Cambodia (LPI rank: 73rd)



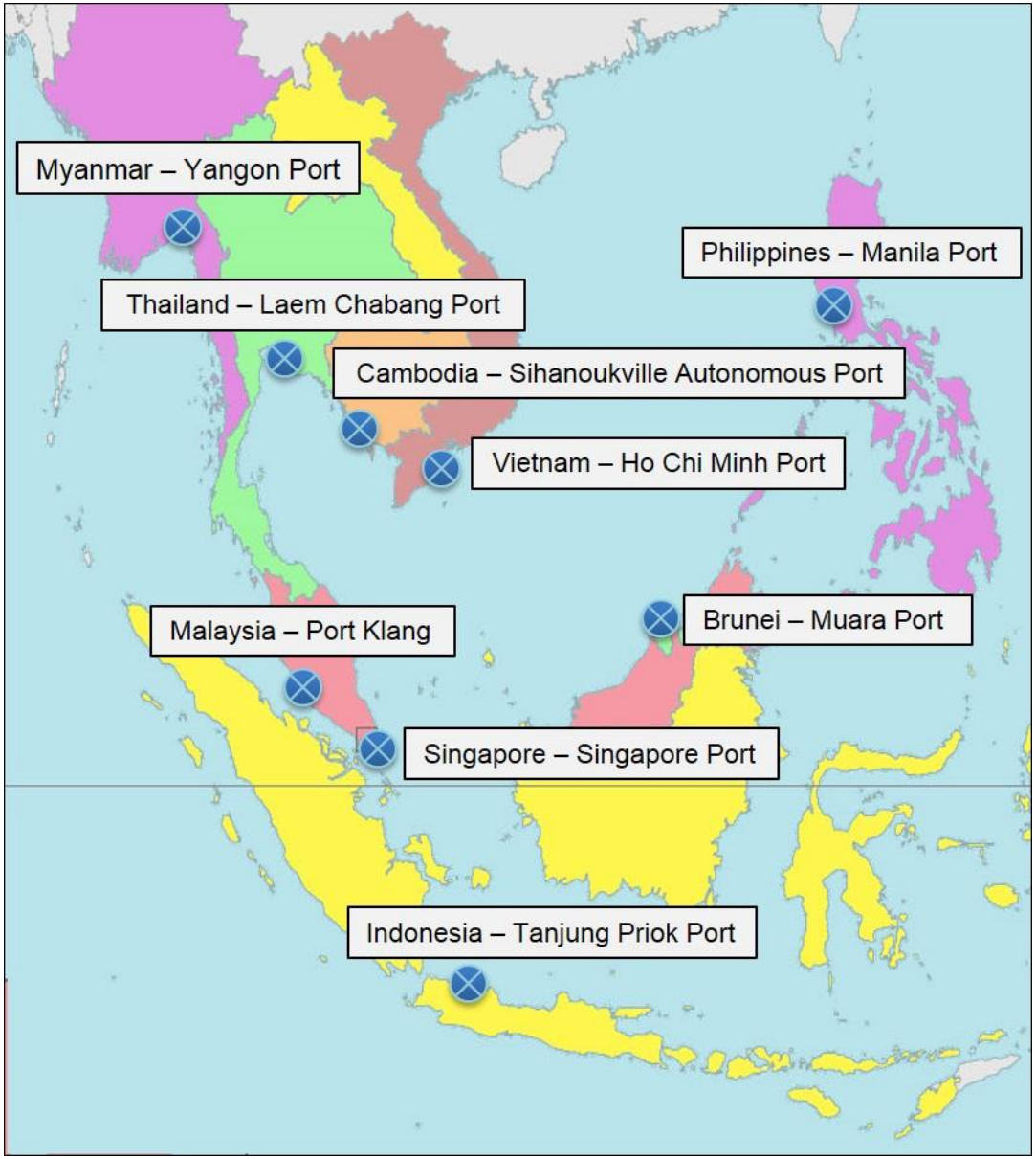
Myanmar (LPI rank: 113th)



Note: Range from 1 (worst) to 5 (best) ; East Asia & Asia Pacific – i.) customs = 2.98, ii.)Infrastructure = 3.02, iii.) International shipment = 3.08, iv.) Logistics competence: 3.07, v.) Tracking & tracing: 3.12, vi.) Timeliness = 3.54

Source: World Bank

ASEAN member states – The ranking of main port



Map source: ASEAN UP

Top 50 container traffic (2016)

Rank	Port	Country
. . .	. . .	. . .
2 (=)	Singapore	Singapore
. . .	. . .	. . .
11 (+1)	Port Klang	Malaysia
. . .	. . .	. . .
19 (-1)	Tanjung Pelepas	Malaysia
. . .	. . .	. . .
21 (=)	Laem Chabang	Thailand
26 (-4)	Ho Chi Minh	Vietnam
. . .	. . .	. . .
30 (-4)	Tanjung Priok	Indonesia
. . .	. . .	. . .
35 (-2)	Manila	Philippines
…	…	…
38 (-11)	Haiphong	Vietnam
. . .	. . .	. . .
45	Tanjung Perak	Indonesia
. . .	. . .	. . .

Note: ( ) = Compared to 2015 ranking
Source: JOC.com

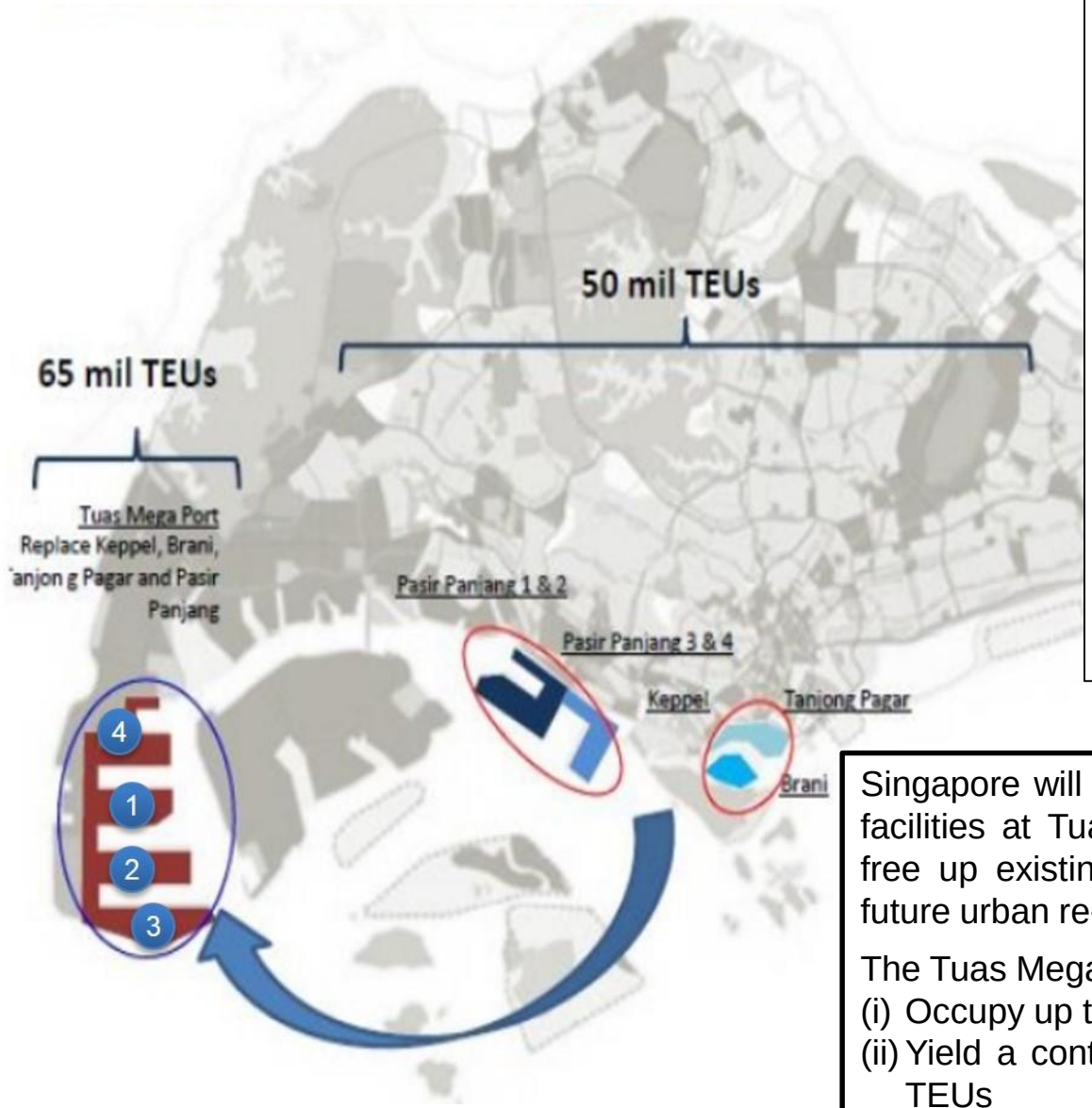
Singapore Port

- Singapore port is located at the southern end of Peninsular Malaysia, 30 km distance away from Johor Port.
- The port is connected to more than 600 ports in 120 countries. Currently, around 80% of the containers arrive in Singapore and transshipped to other ports.
- In 2016, it was ranked as the world's second-busiest port which handled 30.9 million TEUs.
- The new expansion in Pasir Panjang Terminal (Phase 3 & 4) will be completed at end-2017. The capacity of container throughput will increase from 35 million TEUs to 50 million TEUs.

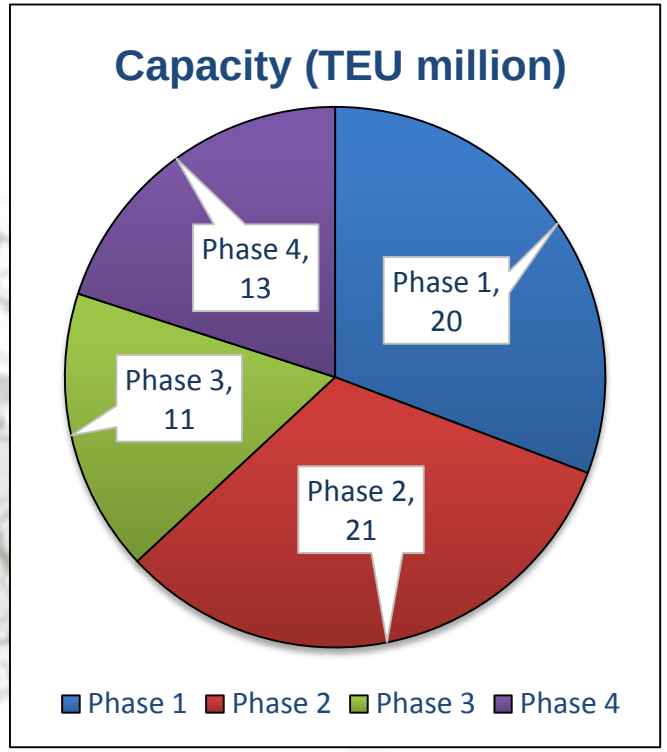
Tuas Mega Port

- Tuas Mega Port is one of the long-term development plan for Singapore. The plan entails the relocation of Tanjong Pagar Port and Pasir Panjang Port to Tuas South by 2027 and use the land for future residential and mix-use developments.
- According to Maritime and Port Authority of Singapore (MPA), a 8.6km quay wall will be built and to re-claim about 300 hectares of land from the sea. This port will be developed in four phases (refer to next slide) and is expected to complete in 2040. The first phase will be completed by December 2020, whereby it can handle 20 million TEUs. Total container capacity is about 65 million TEUs.
- According to StraitTimes (2017), Phase 1 will be completed on schedule (to be operational in 2021) and the land will be leased to the terminal operator from 1H2019.

Relocation to Tuas Mega Port



Source: American Ports evolution



Source: Straits Times

Singapore will start to consolidate its container port facilities at Tuas from 2027. The consolidation will free up existing port land near the city centre for future urban re-development.

The Tuas Mega Port will:

(i) Occupy up to 1400 hectares of land

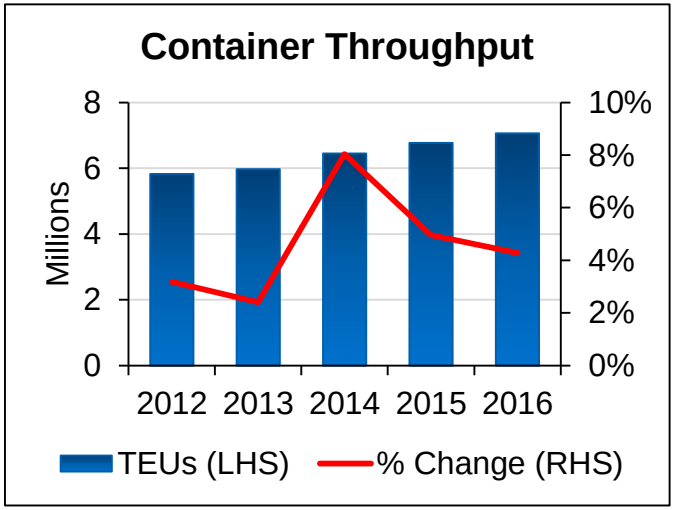
(ii) Yield a container handling capacity of 65 million TEUs

Thailand

- Bangkok and Laem Chabang Port are the two main ports in Thailand. However, Bangkok port is unable to handle large container ships due to geographical limitation (shallow water & narrow channel). Thus, our analysis will focus on Laem Chabang Port.

Laem Chabang Port (LCP)

- Laem Chabang Port (LCP) is ranked as 22nd largest in the world. It is the largest port and car export destination in Thailand.
- The port's container traffic increased by 4.6% pa from 5.65 million TEUs in 2011 to 7.06 million TEUs in 2016. The share of container activities was mainly contributed by imports and exports (99%) in 2011-16. Transhipment at the port declined by 18.8% pa from 21 thousand TEUs to 6 thousand TEUs over the same period.
- To promote LCP's as a logistics hub and gateway for Indo-China, Phase 3 of the port's development involves the expansion of container terminal capacity from seven to 18.1 million TEUs and also triples car export accommodation from one to three million units.
- To enhance the efficiency of rail transfer in LCP, a Single Rail Transfer Operator (SRTO) will be developed to serve discharging or loading containers. It will increase the handling capacity of rail by 1.5 million TEUs from 500,000 TEUs to two million TEUs.

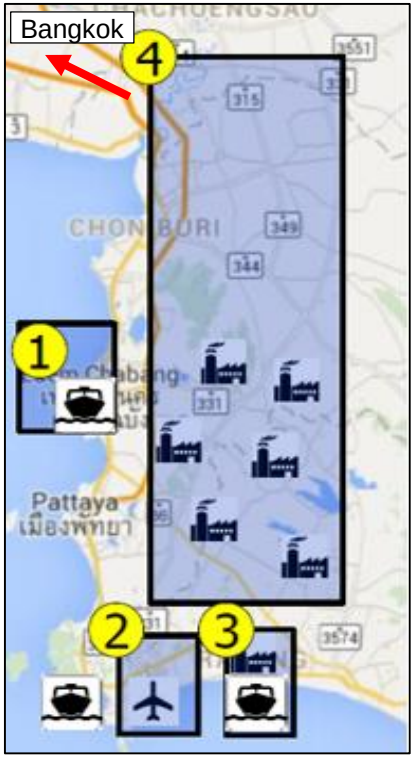


Source: Port Authority of Thailand

Source: Minister of Industry

Eastern Economic Corridor (EEC)

- Eastern Seaboard (nearby Laem Chabang Port) was the starting point of Thailand's industrialisation. The Eastern Seaboard area development has been quite successful in wooing FDI in textile, electronics and automotive industries.
- Presently, the Eastern Economic Corridor (EEC) is a new growth hub to support Thailand 4.0 and industrial policies moving towards innovation-driven economy. The EEC is located in Chachoengsao, Chonburi and Rayong.
- EEC's targeted ten industries are divided into two segments. First, promote value added through advanced technologies to existing five industries (automotive, smart electronics, affluent & wellness tourism, agriculture & biotechnology and foods). Second, other five industries to be additional engines for accelerating Thailand's growth (robotics, aviation & logistics, biofuels & biochemical, digital and integrated healthcare).
- EEC investment cooperation has signed a MOU with Hong Kong Trade Development Council (HKTDC) to connect with One Belt One Road in May 2017. Chinese investors are interested in infrastructure projects such as high speed rail, ports and a regional electronic-trade center and logistic system.
- Laem Chabang Port's expansion plan is preparing to cope with future supply from EEC. While it poses competition to other ports in SEA. Laem Chabang Port might not divert cargoes from the congested Strait of Malacca.

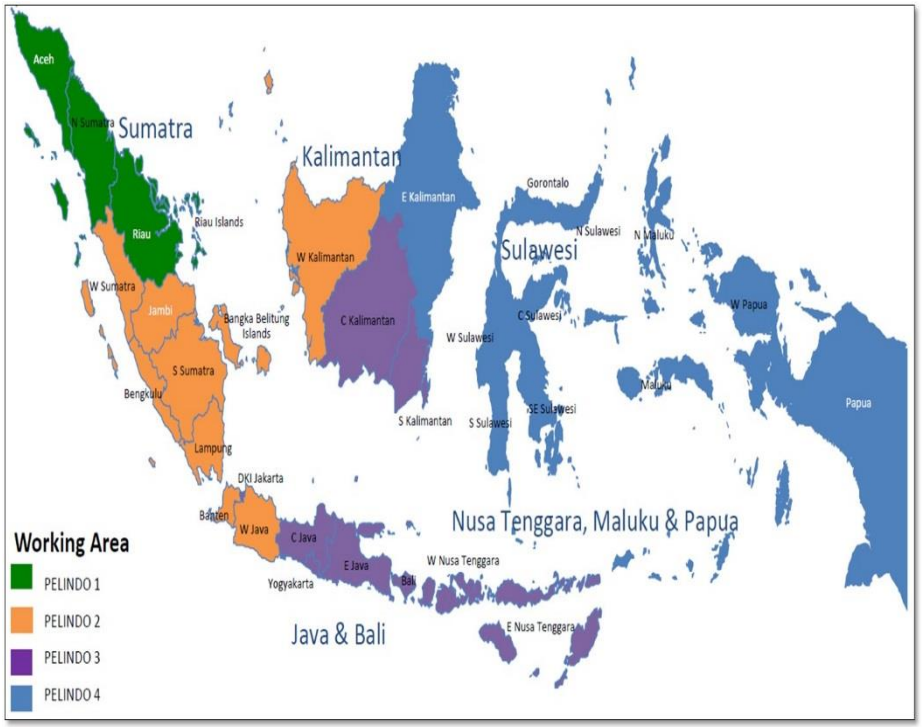


Note: 1: Laem Chabang Seaport, 2: U-tapao airport, 3: Maptaphut seaport, 4: Inland industrial Zones
Source: IEAT

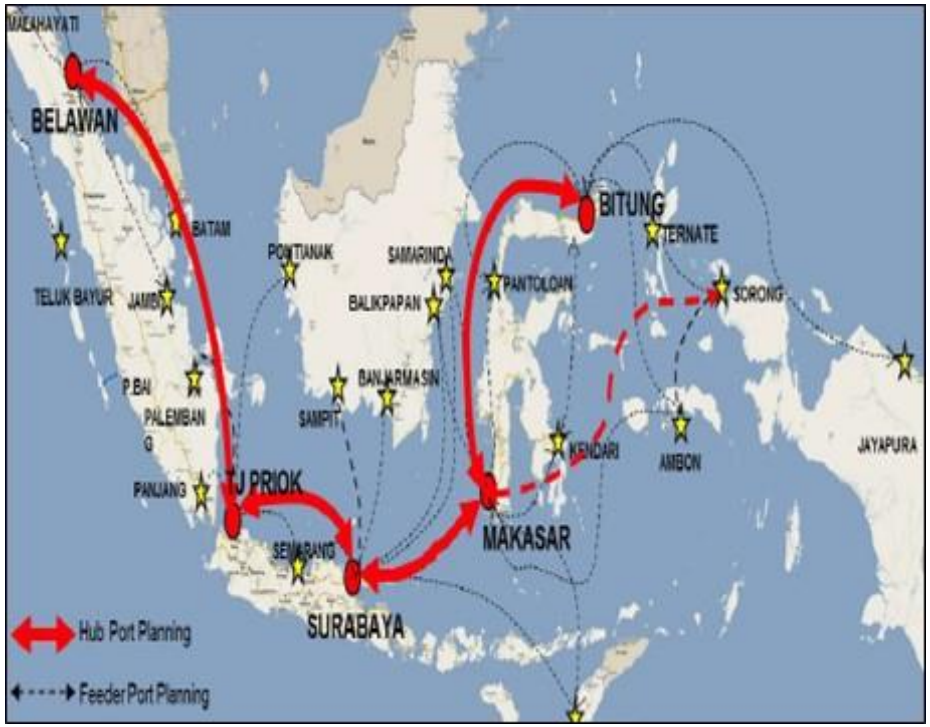
Eastern Economic Corridor (EEC)

Indonesia port structures

- Indonesia has a total of 3,672 ports: 2,011 public ports (111 commercial ports run by IPCs, BP Sabang & BP Batam) and 1,661 special ports run by private company. Four states-owned companies (PELINDO 1, 2, 3, and 4) are managing ports and terminal services.
- Indonesian government has implemented “Sea Toll” program to enhance the connectivity and reduce logistic costs. This “Sea Toll” network connects the main-ports node (five hub ports) and the feeder-ports node (19 feeder ports).
- Four main ports will be in focus: Tanjung Priok Port, Tanjung Perak Port (Surabaya), Makassar Port and Bitung Port. Belawan Port will be analysed in section 2.



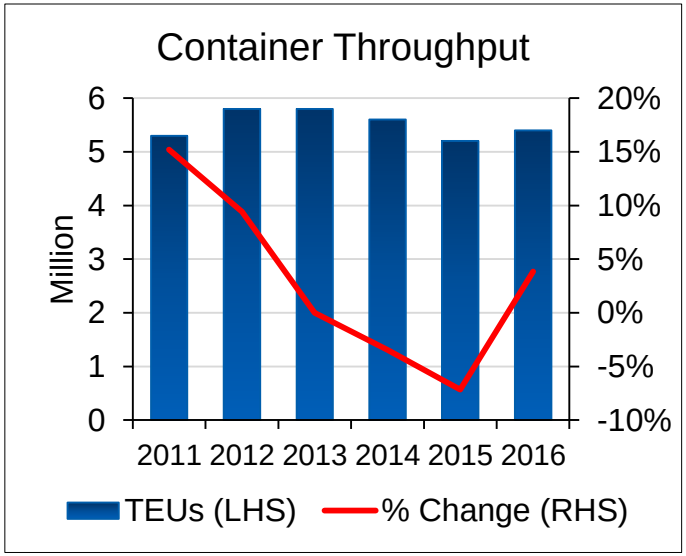
Source: PELINDO 1



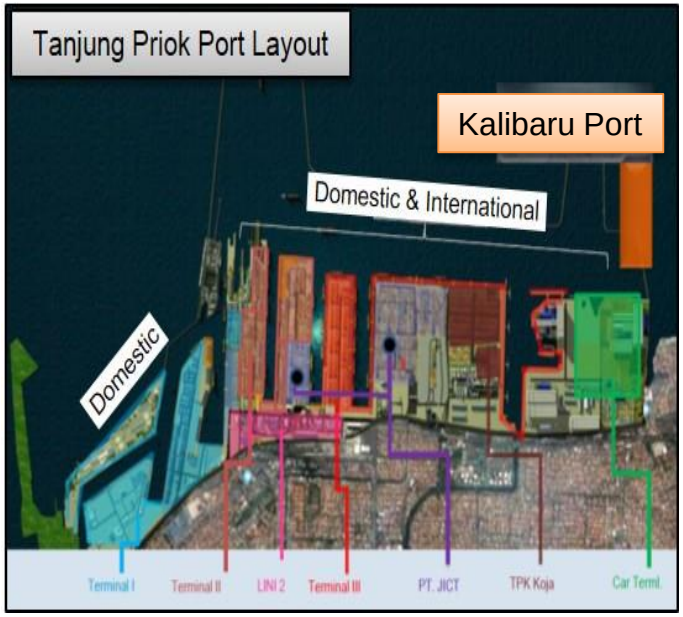
Source: Ministry of Transportation Republic of Indonesia

Tanjung Priok Port

- Tanjung Priok Port, which is located in North Jakarta is the busiest port in Indonesia. It is a multipurpose port and serves as the main gateway to international markets. It also serves as distribution centre for the rest of domestic ports.
- The container throughput increased by 2.7% pa from 4.6 million TEUs in 2010 to 5.4 million TEUs in 2016. Domestic containers accounted for the bulk of port's activities. The current port capacity is seven million TEUs.
- The government allowed the expansion of Tanjung Priok Port's capacity to address traffic congestion and enhance trade connectivity between each of Indonesian islands.
- Based on the Master plan of New Priok Terminal (known as Kalibaru Port), a total of seven container terminals (351 ha) will be built and fully operational in 2023 (*refer to Appendix*). The annual capacity will be increased to 18 million TEUs and able to accommodate vessels size up to 10,000 TEUs.
- Indonesian President Joko Widodo aims to reduce logistics costs and port dwell times, bringing Tanjung Priok Port in line with global standards.



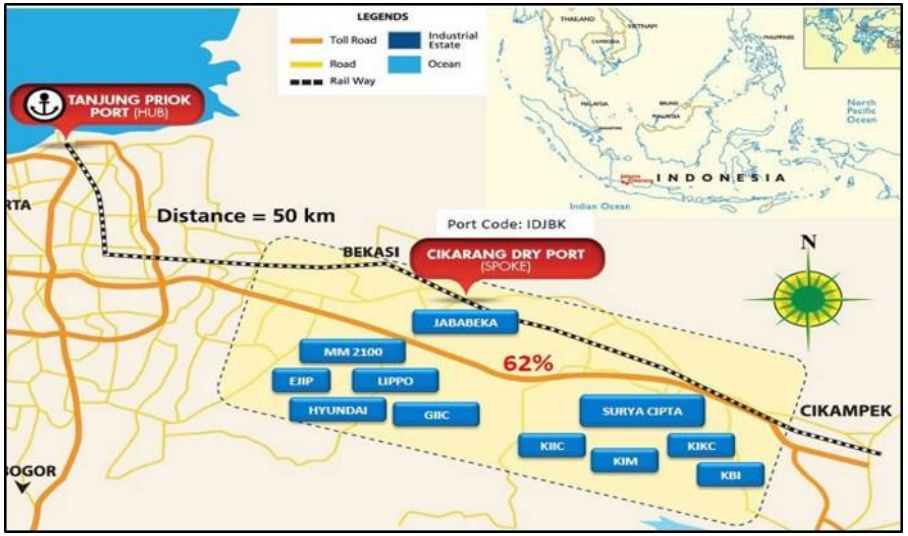
Source: PT Pelabuhan Tanjung Priok



Source: PT Pelabuhan Tanjung Priok

Bakasi-Cikampek Industrial Corridor

- The Bekasi-Cikampek Industrial Corridor is Indonesia's largest manufacturing zone, 50km away from Tanjung Priok Port and located in East of Jakarta. More than ten industrial estates located in the corridor, which comprises over 3,000 manufacturing companies. 60% of Tanjung Port's container demand is generated from this corridor.
- Nearby the corridor, it has a Cikarang Dry Port (CDP) --- Indonesia's first integrated Customs Services Zone which offers a one-stop service for cargo handling, customs clearance and other export-import procedures. It also serves as an extension of the major Tanjung Priok gateway seaport.
- China's first Indonesian economic and trade cooperation zone (CIETCZ*) was established inside the corridor with a total area size of about 500 hectares. This zone is aimed to attract the development of industries in household appliances, manufacturing and processing of agricultural products.
- Since Hub & Spoke concept is well implemented in the Cikarang Dry Port, the authority plans to dig a canal (Investment value: Rp5 trillion) from the dry port to the sea.
- Another dry port has been proposed in the west of Jakarta (Tangerang Area) to strengthen support for Tanjung Priok Port.

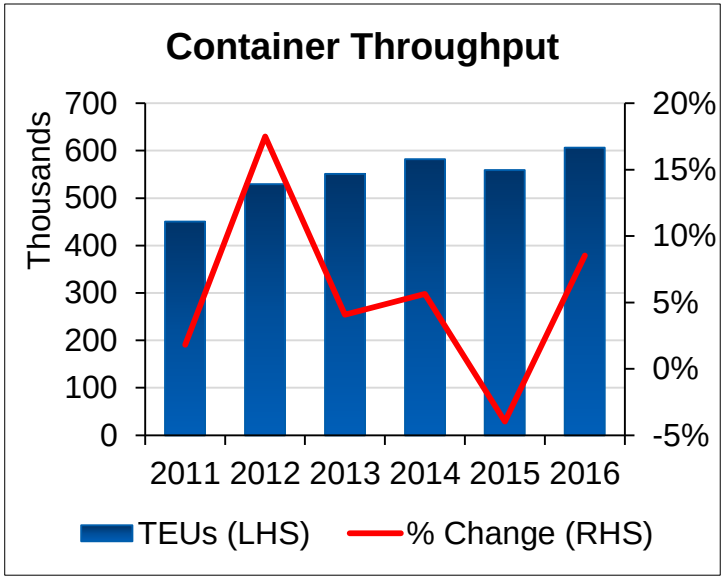


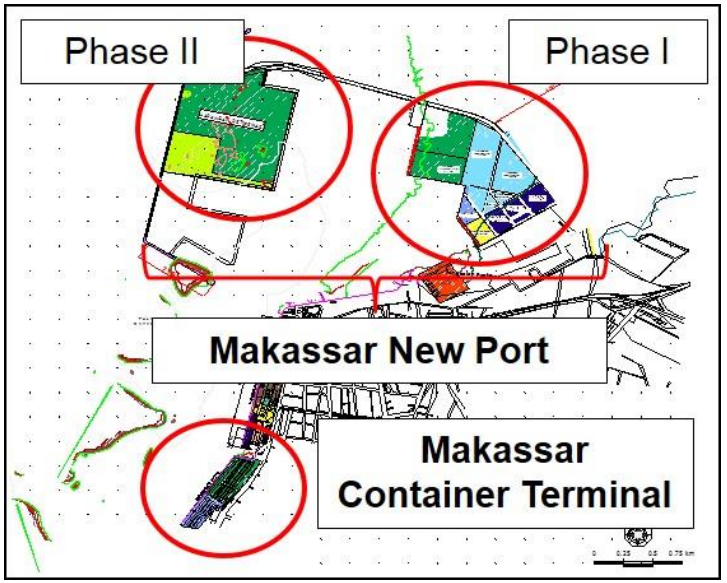
Source: Jakabeka Industrial Estate

*Note: * CIETCZ is known as Pt. Kawasan Industri Terpadu Indonesia China (KITIC)*

Makassar Port

- Makassar Container Terminal is named as the main trading port in East Indonesia. This port is able to receive direct port calls from China, Japan and Korea. The current port capacity is 700,000 TEUs.
- Container throughput raised by 6.1% pa from 450,567 TEUs in 2011 to 606,619 TEUs in 2016.
- It faced a limited port capacity. Most of cargos from East Indonesia were shipped to Jakarta or Surabaya, and then delivered to Singapore and foreign countries.
- In 2015, Indonesian government agreed to develop the Makassar New Port to reduce logistics cost and ease traffic burden in Jakarta or Surabaya. The development consists of two phases:
  - Phase 1: 125ha (Cost = Rp1.8 trillion)
  - Phase 2: 150ha (Cost = Rp12.5 trillion)
- The total capacity will increase to 2.2 million TEUs when Phase 1 is completed in the third quarter of 2018. Phase 2 is expected to boost port capacity up to 4.2 million TEUs by 2032.

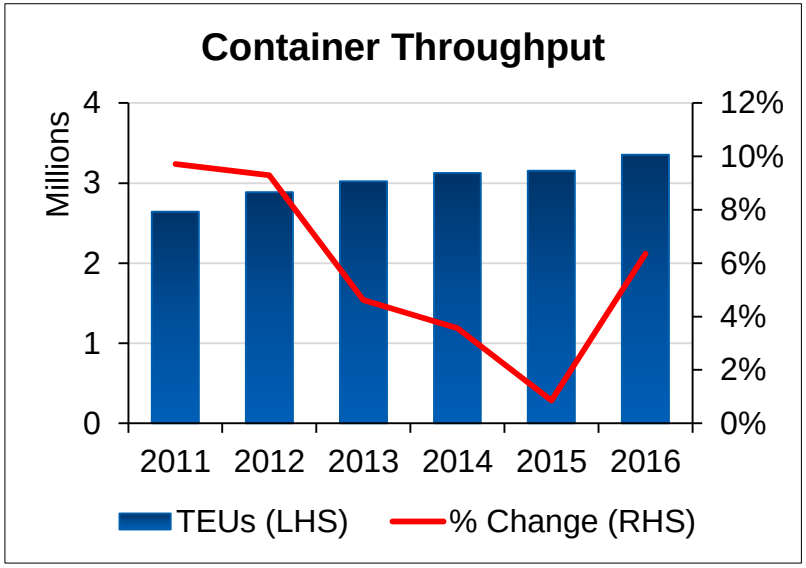




Source: PT Pelindo IV

Tanjung Perak Port

- Tanjung Perak Port is served as a principal port in East Java and also 2nd busiest sea port in Indonesia.
- In 2015, the port capacity is 3.1 million TEUs. By 2019, the port capacity will be increased to 4.9 million TEUs after reconfiguring of existing terminal facilities.
- Container throughput increased by 4.9% pa from 2.6 million TEUs in 2011 to 3.3 million TEUs in 2016.
- Terminal Teluk Lamong (TTL) development is to resolve overcapacity from the existing ports in Tanjung Perak. Phase 1 and 2 of development had completed and currently has port capacity about 2.2 million TEUs. The whole development is expected to complete by 2030 and the port capacity will reach 5.5 million TEUs.

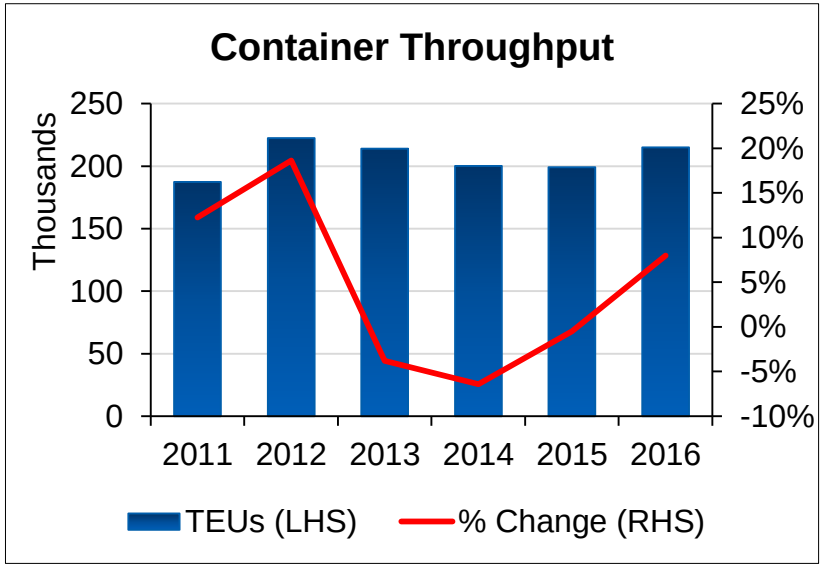


Source: PT Pelindo III

Source: PT Pelindo III

Bitung Port

- Bitung port is the main port located in Eastern Indonesia. The port capacity is 300,000 TEUs. Container throughput raised by 2.8% pa from 187,403 TEUs in 2011 to 215,000 TEUs in 2016.
- Roll-on Roll-off (Ro-Ro) services between Bitung port and Davao port (Philippines) which started in April 2017 provide greater market access, increase trade and reduce travelling time from five weeks to eight days.
- According to KPPIP (2017), the Government is looking for investors or companies to upgrade Bitung port as an International Hub Port (estimate: Rp34 trillion) and to develop Bitung Special Economic Zone (estimate: Rp35 trillion).
- The port is earmarked as the gateway into eastern Indonesia for transhipment activities and direct export of commodities. The future port capacity is potentially up to 2.25 million TEUs.[1]



Source: Pelindo IV

Bitung expansion plan to International Hub Port (IHP)

Source: Bappeda Kota Bitung (2014)

Note: [1] Data from KPPIP report 2016

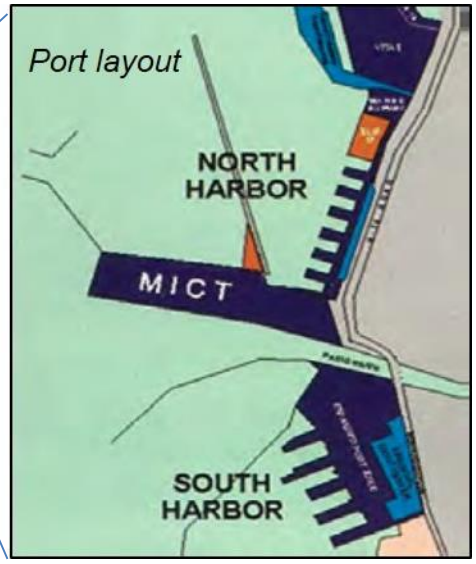
Philippines

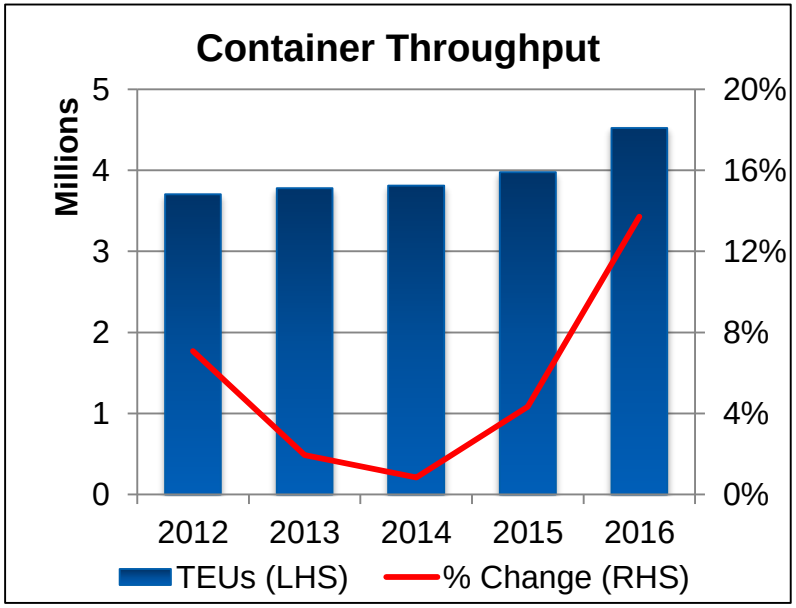
- A “Build, Build, Build” program has been implemented under Philippines President Rodrigo Duterte’s administration.
- Based on the “Build, Build, Build” portal, the program focuses more on airports (18 projects), highways (12 projects) and railways (11 projects). Only three seaport projects are listed under the program:
  1. Modernization of RORO Transport System in the Philippines
  2. Central Spine RORO Alignment Project (Improve port efficiency)
  3. Cavite Barge Gateway Terminal
- For Philippines, we are tracking the ports development in Manila (Northern of Philippines), Cebu (Central of Philippines) and Davao (Southern of Philippines).

Source: www.lizardpoint.com

Manila Port

- Manila port is located at the west end of the Manila City and the heart of the Philippines port system. It is a multipurpose port and playing an important role in supporting economic activities as a gateway and transit port. The port has a capacity of about 5.95 million TEUs.
- Manila port's container growth grew by 4.1% pa in 2012-16. In 2016, container throughput achieved a new record of about 4.52 million TEUs.
- There is no expansion development plan yet in Manila port while traffic congestion is affecting overall urban traffic. To solve the issue, Philippines government provides incentives to encourage shippers to use the Subic and Batangas Port.
- A new terminal called "Cavite Gateway Terminal (25km away from south-west of Manila)" will be built to ease the congestion of trucks traffic on roads through transhipment and Ro-Ro services to/from Manila Port. Phase 1 of the project is designed to support 11,500 TEUs per year and is expected to complete in March 2018.

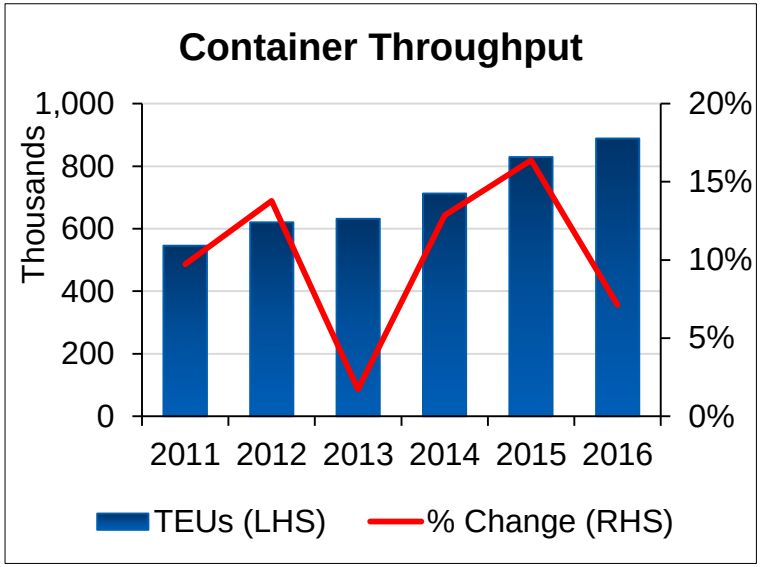




Source: Philippines Ports Authority

Cebu Port

- Cebu Port is located at the centre of the Philippine archipelago. Cebu International Port (CIP) is the second busiest international seaport in Philippines.
- Container throughput raised by 10.2% pa from 545,421 TEUs in 2011 to 888,249 TEUs in 2016. According to the Freeman (2017), the almost full utilization rate of 97% is an indication for the need to build a new port to ease port congestion.
- In 2017, the Government has approved to develop a new Cebu International Port on a 25 hectare reclaimed island in Barangay Tayud. This project aims to decongest the existing port and provides additional capacity of 500,000 TEUs. The project costs around US$181.6 million and will be financed by Korea Eximbank (86.5%) and Philippines government (13.5%). The construction is expected to begin in July 2018 and to complete by 2021. New facility will be installed, which can double container yard capacity from 7,373 TEUs to 14,400 TEUs (Panamax sized vessels).



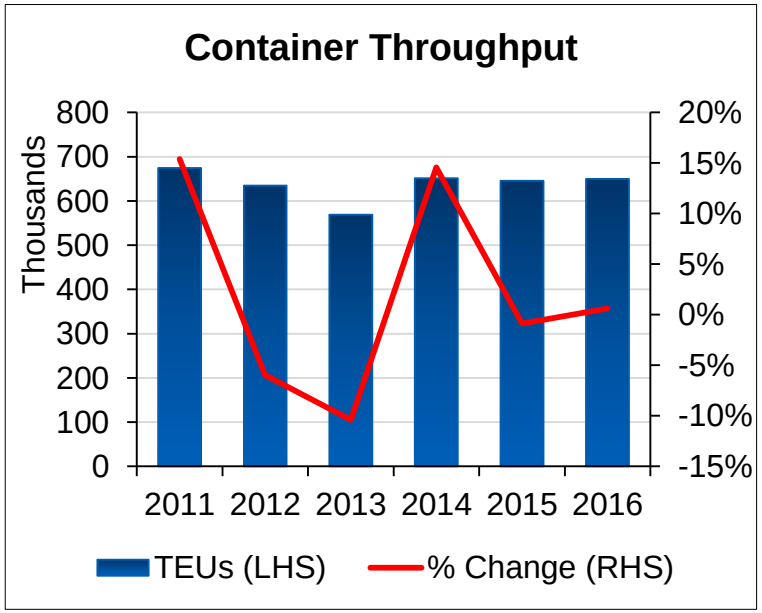
Source: Cebu Port Authority

Proposed New Cebu Container Port (Isolated from existing port)

Source: www.oriconsulglobal.com

Davao Port (Sasa Port / DICT)

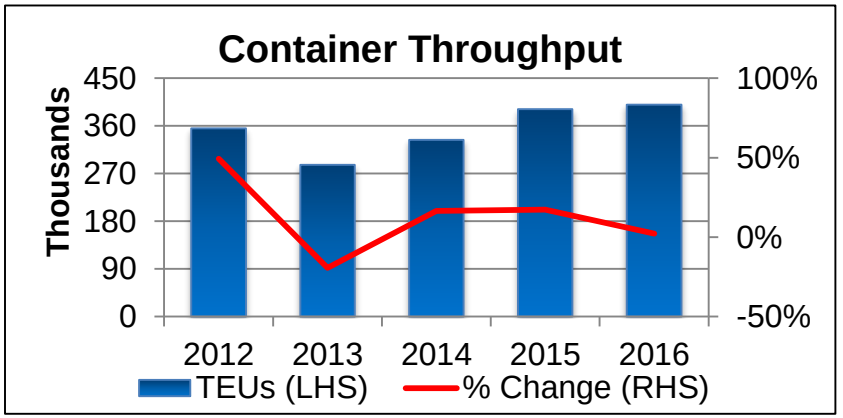
- Davao is located in southern most urban hub and the gateway of the south in Philippines.
- Davao Sasa Port and Davao International Container Terminal (DICT) are the two largest container ports contributing up to 81% of total containers throughput in Davao.
- For Davao Sasa Port, Philippines government opens for bidding to upgrade the port. The project aims to install modern technology-enabled port equipment and transform into world standard port operations (Cost: ₱19 billion). Once completed, the port capacity will increase from 700,000 TEUs to 1.2 million TEUs.
- DICT started to operate in May 2013 with modern terminal handling equipment. The current capacity is 700,000 TEUs while container traffic was 223,384 TEUs in 2016.
- A 54 hectare deep-sea port is planned in Hijo Industrial Estate. The initial port capacity is about 450,000 TEUs. A full development will increase capacity up to two million TEUs.



Source: Philippines Port Authority

Cambodia: Sihanoukville Autonomous Port

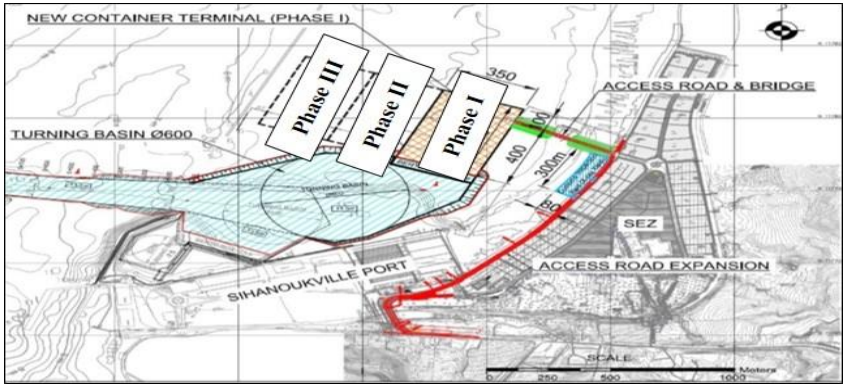
- Sihanoukville port is the sole international deep seaport and located in “Southern Coastal Sub-corridor” that connects Vietnam and Bangkok.
- The container’s capacity is estimated roughly 500,000 TEUs and will expand to 800,000 TEUs by 2023. In a medium-term plan, the target is 1.15 million TEUs by 2030.
- The container throughput in the port raised by 11% pa from 237,941 TEUs in 2011 to 400,187 TEUs in 2016.
- Sihanoukville port has more competitive advantages compared to Phnom Penh port. First, the maximum vessel size to enter Phnom Penh port only up to 1,500-2,000 DWT (100-200TEUs). Second, the direct international routes to/from Phnom Penh are from Vietnam ports such as Ho Chi Minh and Cai Mep Thi Vai Port. Sihanoukville port is able to handle large-sized ships such as large-size bulk carriers (50,000 DWT) and 60,000 DWT class container vessels (about 4,000 TEUs) after the completion of equipment installation.



Port Development Plan – Sihanoukville Port

Short-term Plan (-2023):	Installation of new handling equipment and development of the multipurpose terminal
Medium-term Plan (-2030):	Development of new container terminal (Phase I)
Long-term Plan (-2040):	Development of new container terminal (Phases II and III)
Extra Long-term Plan (2040-): *(Refer to appendix)*	Stage I: Development of remaining inner area of the existing breakwater
	Stage II: Expansion to outer area of the existing breakwater

Note: The development of the new container terminal is divided into three phases: Phase I is conducted in the medium-term plan, and Phases II and III are planned in the long-term plan.



Source: pas.gov.kh

Two Special Economic Zone (SEZ) surrounding Sihanoukvile Port

- Sihanoukvile Port SEZ and SEZ were established to support the port and attract foreign investors, especially for export-oriented and non-traditional industries.

Sihanoukville Port SEZ (SPSEZ)

- SPSEZ* (70ha) is located within port area and 2km from city. It is the only development cooperation between Cambodian and Japanese government under official development assistance (ODA) loan.
- Companies operating business in the zone will receive some tax exemptions (0% VAT for each import; exemption of tax on profit up to nine years; exemption of export and import duty); low labor cost (One Chinese worker = six Cambodian workers) and zero cost of transportation.
- In addition, there are permission for long-term lease up to 50 years and permanent visa for families and investor.

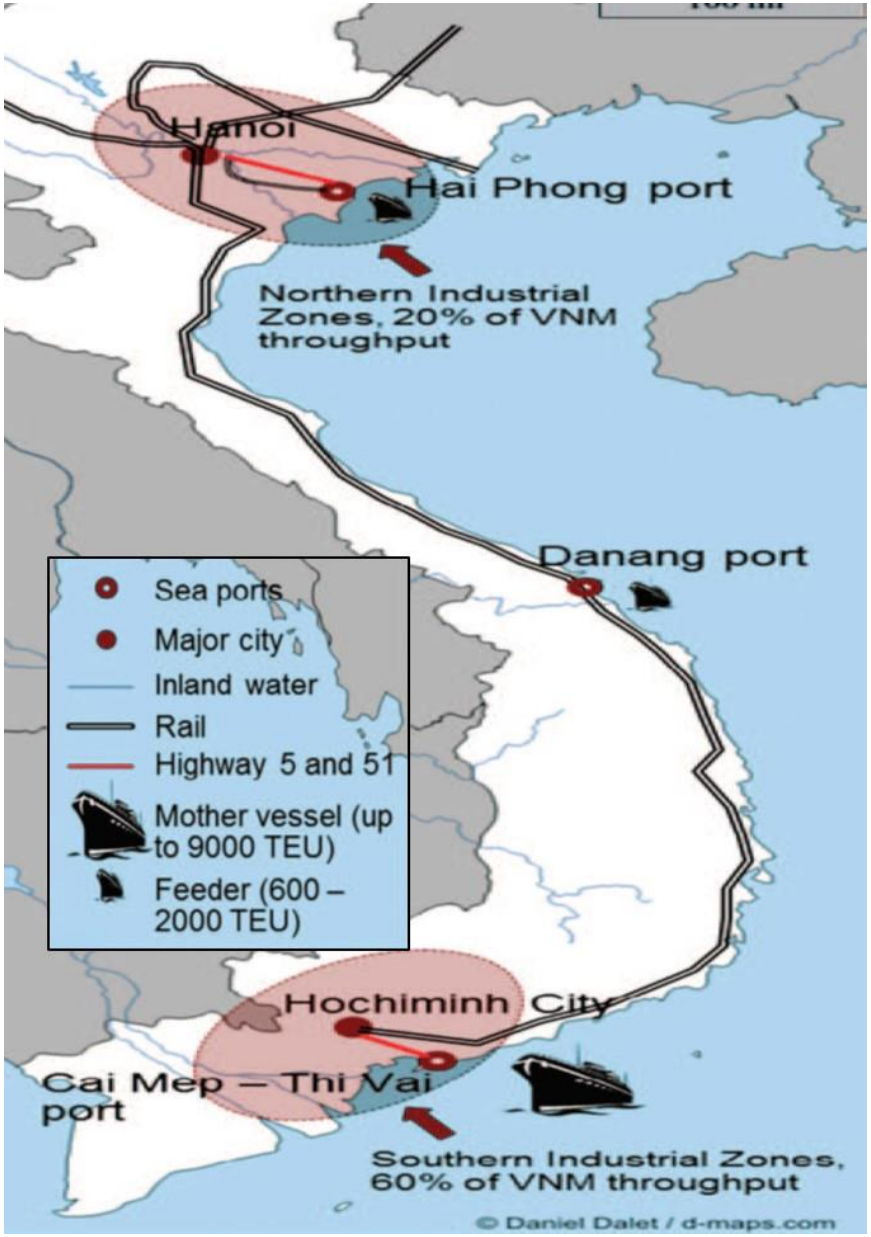
Sihanoukville SEZ (SSEZ)

- SSEZ* (1,113ha) is located at 3km from airport and 12km from port.
- It is the first batch of overseas economic zones approved by the Ministry of Commerce of China. For those Chinese companies operating in SSEZ, they can utilize the privilege of soft loan and subsidy during the prior period of investment.
- In November 2016, 109 factories have began operations, of which 94 are Chinese companies. These factories include textiles and clothing, hardware and machinery, light industry and home appliance.
- According to Khemer Times (2016), the number of Chinese companies will increase to 300 by 2020.

*Note: * = Layout of SEZ refer to appendix*

Vietnam

- Vietnam has a 3,260km of coastline and more than 100 seaports. The logistics sector is growing continuously after Vietnam signed Free Trade Agreement (FTA) with Korea, Eurasian Economic Union (EAEU)[1], European Union (EU), US and etc.
- Vietnam government formed a “Master Plan for seaport system development 2020-2030” to improve seaport infrastructure and enhance the competitiveness of Vietnam’s ports.
- For Vietnam, we are reviewing the development in Hai Phong Port (Northern of Vietnam), Da Nang Port (Central of Vietnam) and Ho Chi Minh Port (Southern of Vietnam).



Source: d-maps.com (http://d-maps.com/carte.php?lib=vietnam_map&num_car=716&lang=en); A.T. Kearney analysis

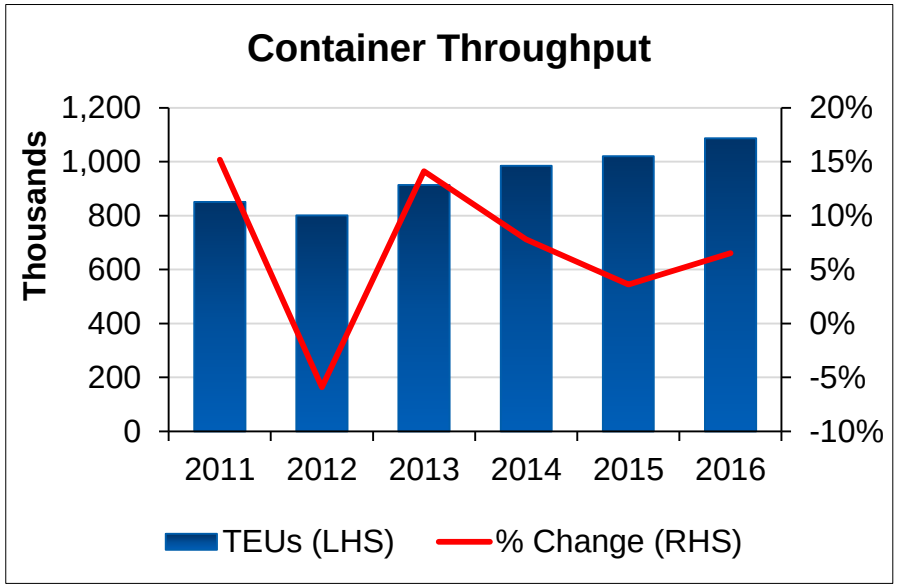
Note: 1 = Eurasian Economic Union (Russia, Belarus, Kazakhstan, Armenia, Kyrgyzstan)

Hai Phong Port

- Hai Phong Port is located 102km to Hanoi Capital, the largest international commercial port in Northern Vietnam and located in two Vietnam-China economic corridors[1].
- Container throughput expanded by 5% pa from 850,600 TEUs in 2011 to 1.08 million TEUs in 2016. Port capacity is 1.8 million TEUs[2].
- To support future growth, a US$1.2 billion new and first deep seaport named as Haiphong International Gateway Port or Lach Huyen Port is under construction and is expected to operate in 1st quarter 2018. This port has a capacity of 1.1 million TEUs and able to accommodate container ships of 8,000 TEUs. A new shipping line will be operating from Northern Vietnam directly to the US and European markets without transhipment via Singapore.

Hai Phong Seaports System

Source: HaiPhong Economic Authority

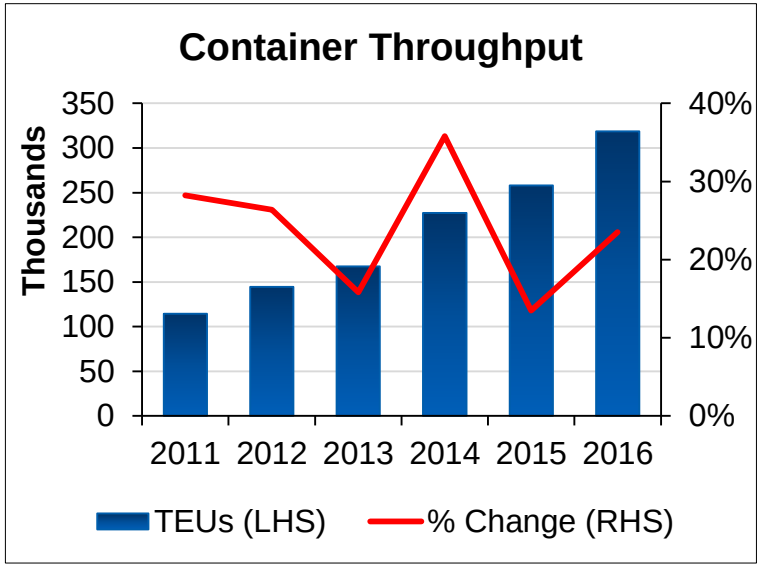


Source: Port of Hai Phong Join stock company

Note: 1 = Kunming – Lao Cai – Hanoi – Haiphong Economic Corridor / Nanning – Lang Son – Hanoi – Haiphong Economic Corridor, 2 = Hoang Dieu Terminal (capacity of 200k TEUs) + Chua Ve Terminal (capacity of 800k TEUs) + Tan Vu Terminal (capacity of 800k TEUs)

Đà Nẵng Port

- Da Nang Port is the biggest port (*in terms of cargo*) in the Central Vietnam. It is also a main gateway to support the East West Economic Corridor (EWEC). Tien Sa Port is the main load/unload container port.
- Despite having container throughput of only 318,654 TEUs in 2016, the container growth grew by 22.7% pa in 2011 to 2016.
- Tien Sa Port is under the stage 2 expansion. When completed by 2018, the port is able to serve up to 50,000 DWT vessels and 4,000 TEUs container ships. The port capacity will rise to 12 million tons of cargo and 463,000 TEUs.
- According to Vietnam Investment Review (2017), the Danang City People's Committee has proposed to construct Lien Chieu Port to serve as an international gateway port in Central Vietnam. Total investment is estimated US$1.47 billion. The potential port capacity is 46 million tons of cargo and 2.5 million TEUs.

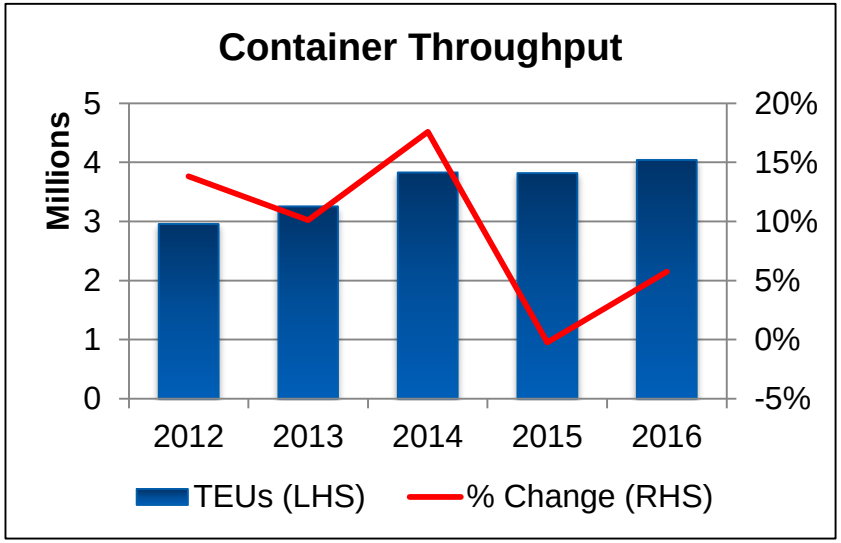


Source: Vietnam Port Association

Da Nang Seaports System

Saigon New Port

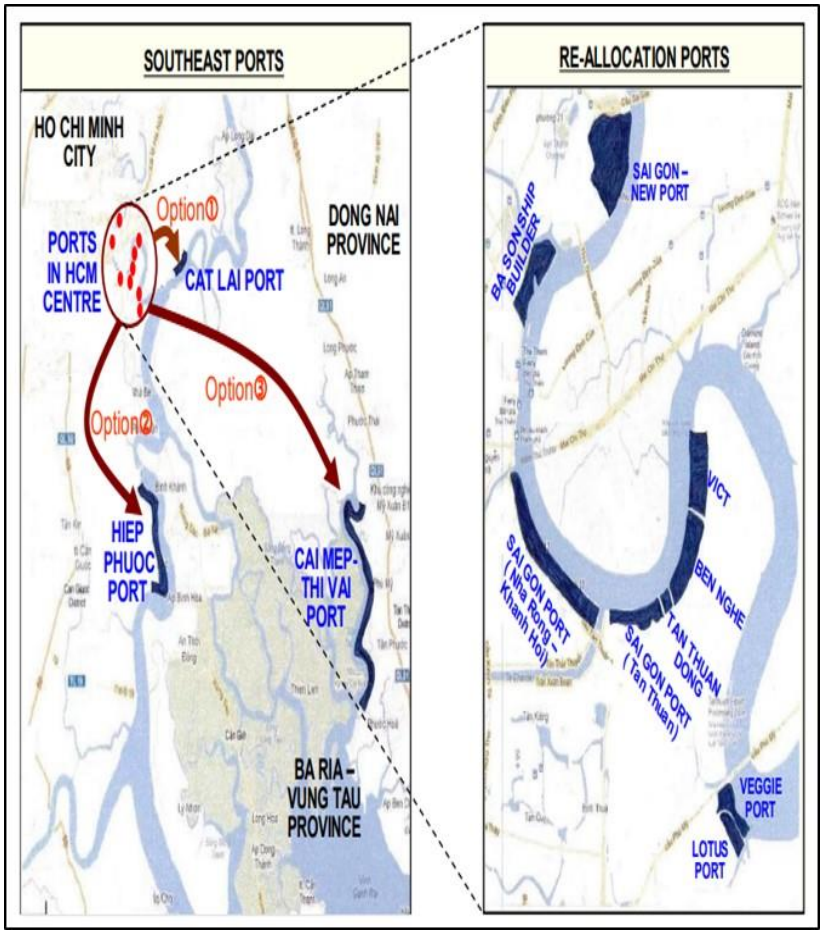
- Saigon New Port normally refers to Tan Cang Terminal and Cat Lai Terminal. It is the biggest and most modern container port in Vietnam. The port's capacity is about 5.4 million TEUs.
- Port's container throughput raised by 6.6% pa from 2.9 million TEUs in 2011 to four million TEUs in 2016.
- This port is linked to the National Highway #1 and allows vehicles with loading capacity up to 30 tons. Through these highways, goods are transported to the economic areas of Binh Duong, Dong Nai, Long An, Ba Ria – Vung Tau and provinces of Cuu Long Delta.
- According to JICA study, Cai Lai terminal is unable to expand further due to the limited land area.



Note: Tan Cang Terminal + Cat Lai Terminal
Source: Vietnam Seaports Association

Note: Cat Lai Terminal (A+B+C)
Source: Saigon New Corporation

- According to Port Master Plan, ports located in Ho Chi Minh Centre have to re-allocate into Cat Lai port, Hiep Phuoc Port or Cai Mep Thi Vai Port by 2020 for solving serious traffic congestions in the city.
- To handle the future container demand, Hiep Phuoc Port will be developed to become city's 2nd key port. It is 16km away from the Ho Chi Minh City. Currently, the operators are Saigon Newport Corporation (Cat Lai port operator) and DP world.
- For Cai Map Thi Vai Port located at the mouth of the South China Sea, the water depth is sufficient for large vessels and has not yielded much impact on the social and environmental.
- Currently, one of the terminal, TCTT*, can handle vessels up to 110,000 DWT and has annual capacity of one million TEUs throughput.
- At the nearby area of Cai Mep-Thi Yai Port, the Government plans to establish a special industrial zone for Japanese companies.
- In recent years, there were an increase number of Chinese companies investing heavily in rubber and wood product manufacturing plants.
- The reshuffling of ports in HCM is seen as a strategy to further attract foreign direct investments.

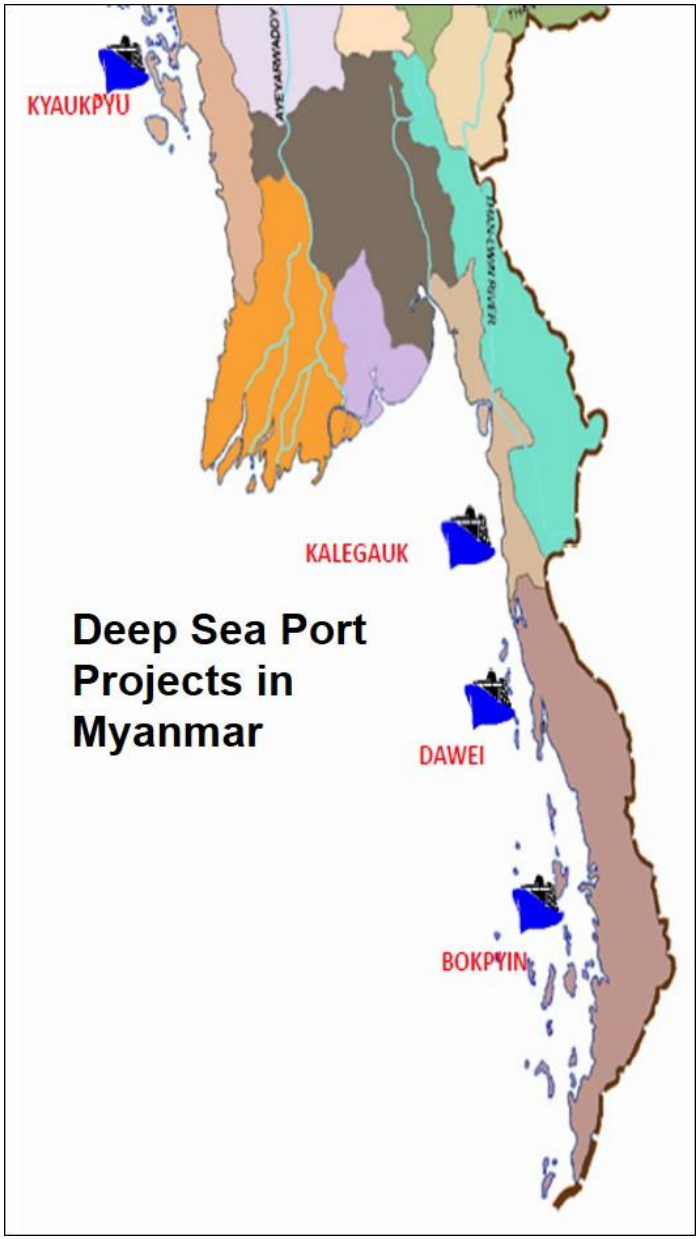


Source: JICA

Note: TCTT = Tan Cang Cai Mep Thi Vai Terminal Co. LCC*

Myanmar

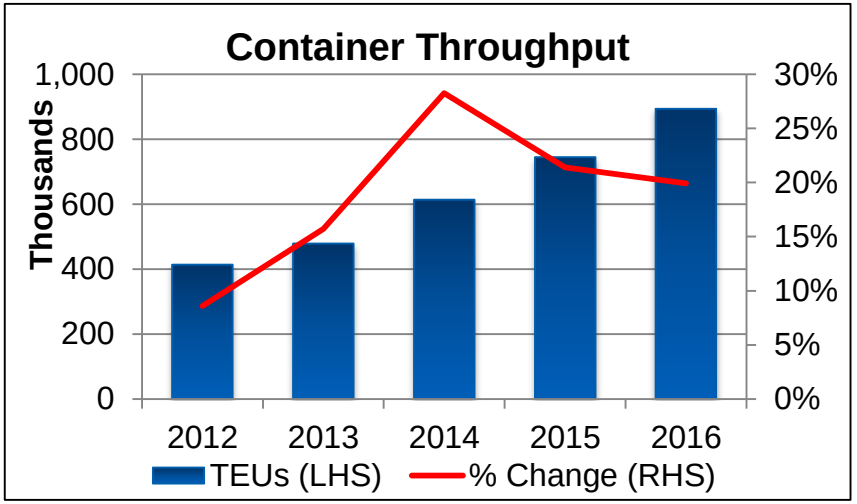
- Deep seaport projects are planned along the coast of Myanmar due to all existing ports, including Yangon Port are river ports, which are incapable to handle larger size of vessels.
- At this juncture, government's priority is to develop Kyaukpyu and Dawei deep sea ports since Special Economic Zone(SEZ) can support the port activities as well.
- The Dawei development plan has changed due to lack of funding. Myanmar government has decided to establish a small industrial zone and port for test-run. Any further development will depend on the result from the small industrial zone.
- Thus, we will focus on the Yangon port (the main port of Myanmar) and the Kyaukphyu port.

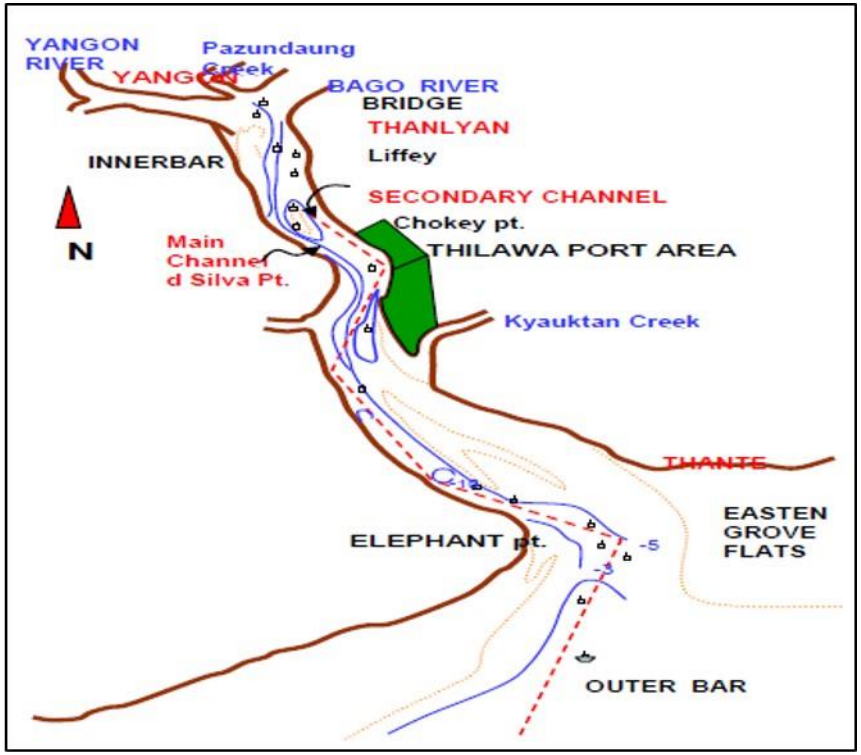


Source: Myanma Port Authority

Yangon Port

- Yangon Port consists of two parts: i.) Yangon Inner Harbour Terminals; and ii) Thilawa Area Terminals. Both areas are expandable to meet the future demands.
- Yangon port is handling about 85% Myanmar's imports and exports seaborne trade. Its capacity had doubled from 413,377 TEUs in 2012 to 893,201 TEUs in 2016.
- Most of terminals located close to the downtown area have caused congestion in road and sea traffic.
- The natural condition surrounding Yangon Inner Harbour Terminals is not deep enough to handle ship size more than 15,000 DWT.
- Myanmar government has planned to strengthen multi-model connectivity at both regional and district levels such as Hanthawaddy International Airport (northeast of Yangon) and deep sea port projects.





Source: Myanma Port Authority

Future Port Development at Thilawa Area

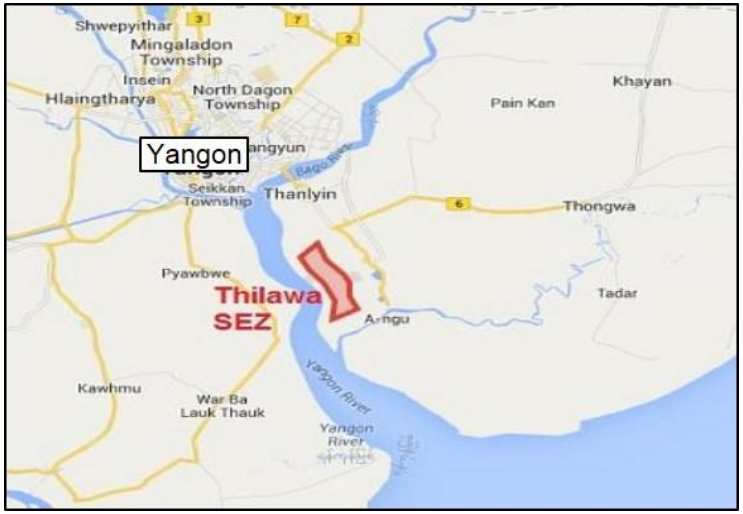
Inner Harbour Area Development

Source: Myanma Port Authority

Thilawa Special Economic Zone (SEZ)

- Thilawa SEZ is Myanmar's first special economic zone and also a large-scale joint project between Myanmar and Japan. Total development area is 2,400ha and 20km away from southeast side of Yangon City. Zone A of Thilawa SEZ (405ha) was completed in 2016. Zone B (101 ha) is under construction and is expected to complete in mid-2018.
- In 2016, Japan's Tokyo Construction and JFE Engineering Corp won a contract to build a new container terminal at Port of Thailwa. The port capacity is about 187,000 TEUs. When completed in 2018, it can handle two ships of up to 20,000 DWT at the same time.
- Furthermore, 78 foreign companies (39 Japanese companies) had entered a preliminary contract within the zone in 2016. European and Japanese chambers hope that a deep seaport (capacity around two to three million TEUs) can be established together with Thilawa SEZ.

Source: Myanmar Thilawa SEZ Holdings Public Limited



Source: OV logistics

Kyaukphyu

- Kyaukphyu (western Rakhine State) served as an entry point for China's oil and gas pipeline. It is an alternative energy route bypass Strait of Malacca (saving 5,000km).
- In April 2017, China's Myanmar Energy Link was officially launched, which directly transport crude oil from Myanmar's Made Island to PertroChina Kunming Refinery.
- For Kyaukphyu's development, five Chinese companies and a Thai company were awarded to develop the Kyauk Phyu Special Economic Zone (estimate: US$7.3 billion) and a deep sea port (estimate: US$10 billion) in 2016.
- According to Myanmar Business Today (2016), the port capacity is expected to be 7.8 million tonnes of bulk cargo and 4.9 million TEUs. The port has potential to upgrade to seven million TEUs in future.
- Based on Myanmar Times (2017), the whole project is waiting for the approval of environmental impact assessment (EIA).

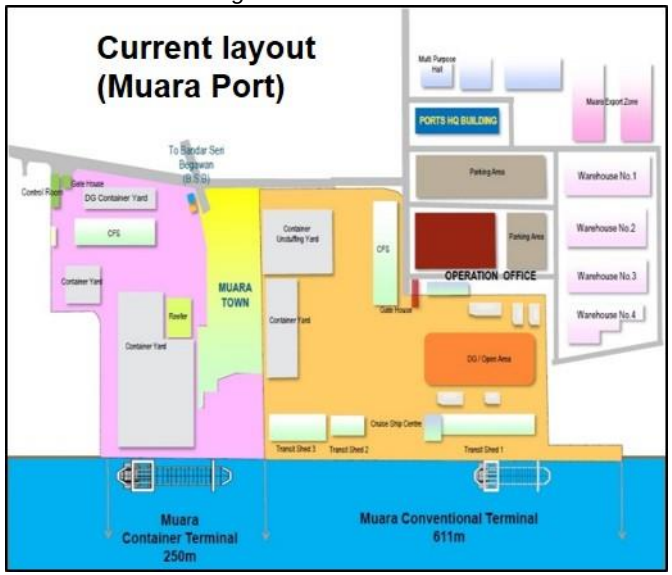
Source: Shwe Gas Movement, Bloomberg

Source: thaibizmyanmar.com

Brunei: Muara Port

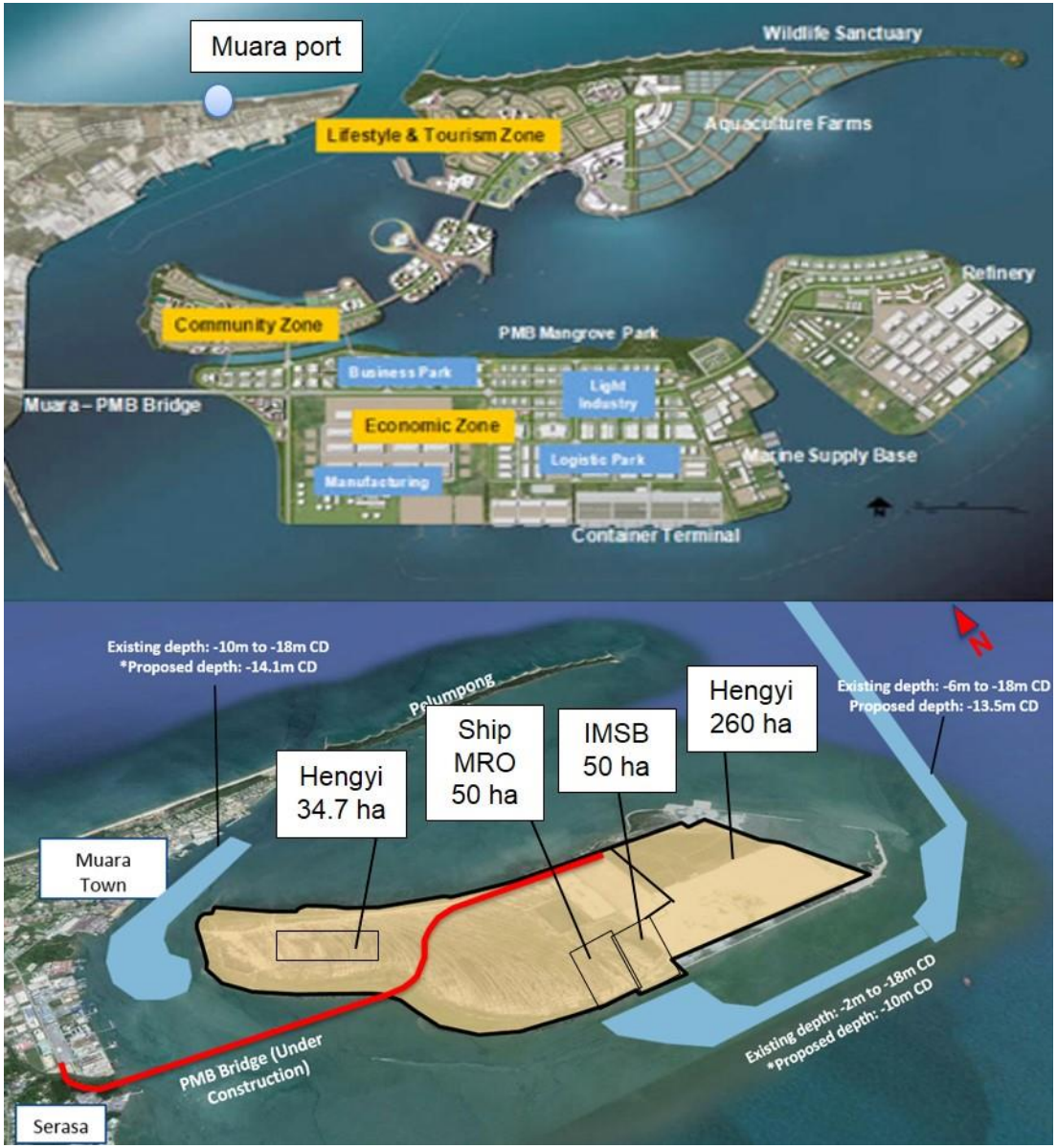
- Muara Port is the largest container terminal in Brunei. Total land area is five hectares with a capacity of 220,000 TEUs. It is able to expand to a capacity of 330,000 TEUs.
- International Container Terminal Services, Inc. (ICTSI) operated the port for about eight years but failed to renew the services agreement for the operation.
- In February 2017, the port was taken over by the Muara Port Company Sdn Bhd (MPC), which is a joint venture company between China's Guangxi Beibu Gulf Port and Brunei's Darussalam Asset.
- MPC aims to transform Muara Port into a world class international port and opens direct routes to China and other Southeast Asian ports.
- In the short to mid-term plan, MPC aims to build a new 50,000 tonnes container terminal to increase throughput capacity of the port.
- According to Hellenic Shipping News (2017), Muara Port showed an increase by 7,000 TEUs between January and April in 2017 from 28,000 TEUs to 35,000 TEUs compared the same period a year ago.

Source: wikimedia.org



Source: Mincom.gov.bn

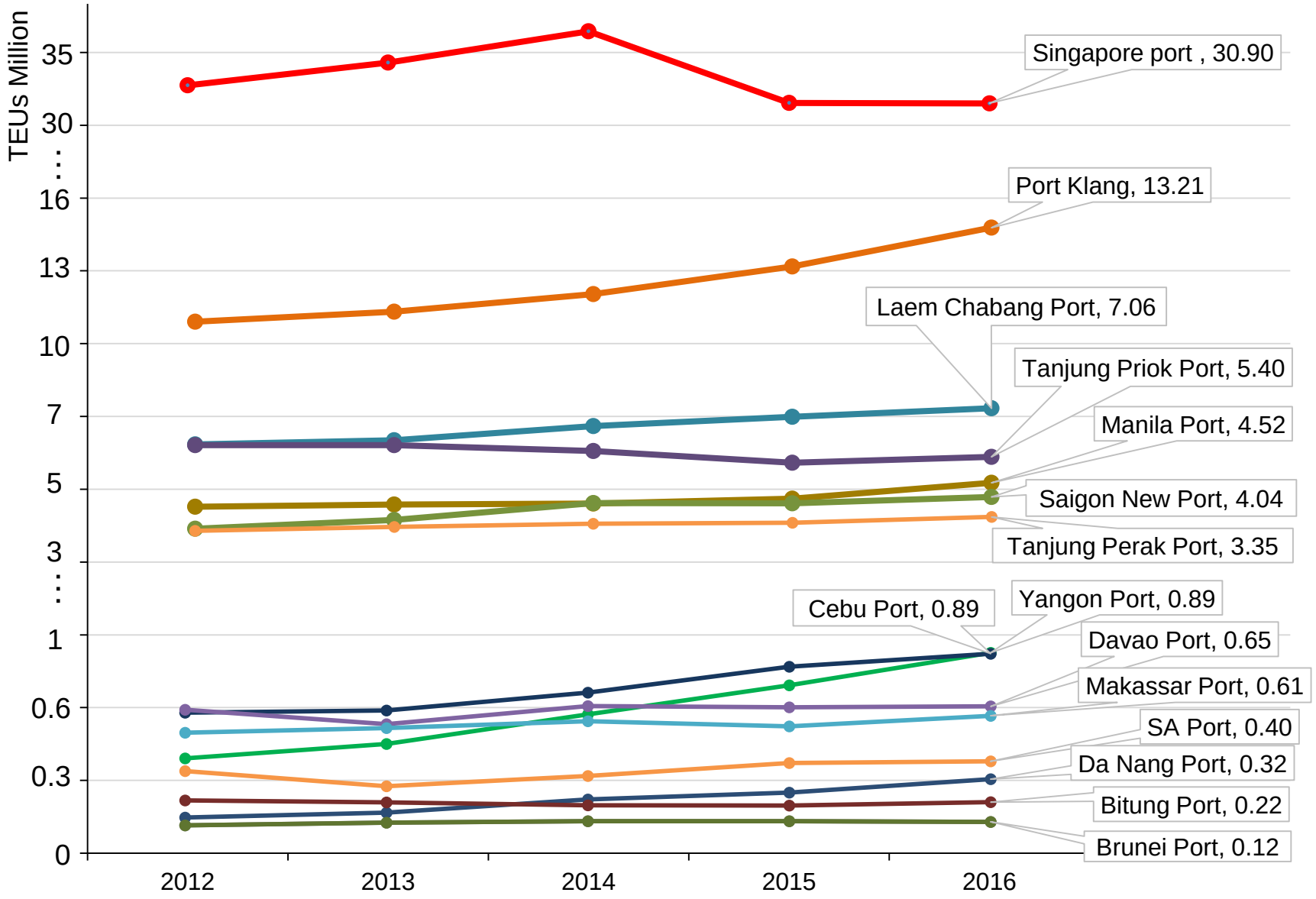
Pulau Muara Besar Development



Source: dara.gov.bn

- Pulau Muara Besar is 4km away from Brunei International Airport and 24km away from Brunei Muara Port.
- The development of Pulau Muara Besar was commissioned in 2003, covering a total of 955 hectares industrial port complex in Brunei Bay.
- In 2011, Chinese company Hengyi Group received the permit to develop an oil refinery and aromatics plant (260ha) costing about US$10 billion. When completed in 2019, the plant will process approximately eight million tonnes annually or 175,00 barrels per days of crude.
- A length of 5.9km Pulau Muara Besar bridge is being built by China Harbour Engineering Company Ltd (CHEC) and will be completed in April 2018.

The growth trend of TEUs in ASEAN ports



Note: SA=Sihanoukville Autonomous

Summary of main ports development by ASEAN member states

Port	Development Status	Capacity (TEUs)	
		2016	Future
Singapore	• Relocating existing ports in central region to western region • Land of existing ports will be used for future urban re-development	50 million	65 million
Laem Chabang	• Transforming ECC into industry 4.0 and digital base • Enhancing infrastructure connectivity within ECC	7 million	18.1 million
Tanjung Priok	• Reducing logistics costs and port dwelling • Propose to have another dry port in west Jakarta	7 million	18 million
Makassar	• Transforming into international seaport • Reducing logistics costs and ease traffic burden in Jakarta and Surabaya through port expansion	700,000	4.2 million
Tanjung Perak	• Reconfiguring role of existing port • Expanding Terminal Teluk Lamong to resolve overcapacity	5.3 million	10.4 million
Bitung	• Upgrading to international hub port • Lack of funding to expand port capacity	300,000	2.25 million
Manila	• No expansion plan • Solving traffic congestion issues in sea and city	5.95 million	5.95 million

Note: n/a = not applicable

Summary of development of main port by ASEAN member

Port	Development Status	Capacity (TEUs)	
		2016	Future
Cebu	• Building a new Cebu container port to decongest traffic	915,000*	1.41 million
Davao (Sasa Port / DICT)	• Modernizing the Davao Sasa Port	1.4 million	3.9 million
Sihanoukville Autonomous	• Developing into large size port to support the seaborne trade • Majority of manufacturing investors from China and Japan participating in SEZ	500,000	1.15 million
Hai Phong	• Developing a new and first deep seaport • Creating a direct shipping line between Vietnam and Western countries	1.8 million	2.9 million
Da Nang	• Waiting for approval to build Lien Chieu Port to serve containers	n/a	3.1 million
Saigon New	• Relocating existing ports into outside Ho Chi Minh city • Developing Hiep Phouc port as the 2nd key port • Planning to build a deep seaport in mouth of South China sea	5.4 million	n/a

*Note: n/a = not applicable, *= In 2016, utilization rate is 97%., Capacity = 888,249TEUs*100%/97%*

Summary of development of main port by ASEAN member

Port	Development Status	Capacity (TEUs)	
		2016	Future
Yangon	• Limited land to expand port nearby Yangon city • Developing Thilawa SEZ and expanding port's capacity of Thilawa • Strengthening infrastructure connectivity between Yangon and Thilawa	n/a	3.1 million
Kyaukphyu	• Waiting for the approval of environment impact assessment (EIA) to build deep seaport	n/a	7 million
Muara	• Developing an new economic zone next to the port • New container terminal is located in Pulau Besar	220,000	330,000

Note: n/a = not applicable

Section 2

Review ports development in Sumatra and its impact to Strait of Malacca

Indonesian ports along the Strait of Malacca

- The current annual container traffic of Malaysia and Singapore is 23.8 million and 30.9 million TEUs, respectively. While both have relatively much smaller population than Sumatera, they are large trading nations as reflected by the high container traffic volumes.
- Taking into account the relative larger population in Sumatera, which provides the base for future demand and production structures, the provision of infrastructure such as port facilities to support economic activities will be accelerated.
- Maritime infrastructure is the prime focus of President Joko Widodo. According to The Jakarata Post (2015), the five ports (Malahyati, Belawan, Kuala Tanjung, Dumai and Batam) will carry on for expansion purposes. We will review the ongoing developments of ports along the Strait of Malacca.

Source: PELINDO 1

Comparison: Sumatra vs Peninsular Malaysia vs Singapore

- Sumatra needs to have container terminals given its large population and container traffic.

Population (2016) (million)

Indonesia		***258.7***
	Sumatra	***56.1***
	Aceh	5.09
	Sumatera Utara	14.1
	Sumatera Barat	5.25
	Riau	6.5
	Kepulauan Riau	2.02
	Jambi	3.45
	Sumatera Selatan	8.16
	Bengkulu	1.9
	Lampang	8.2
	Kepulauan Bangka Belitung	1.4

Population

Peninsular Malaysia
25.3 million

Singapore
5.6 million

Container Traffic in Indonesia

Year	Pelindo I	Other*	Total	Share (Pelindo I)
	Million (TEUs)			
2012	1.30	12.26	13.57	9.6%
2013	1.33	12.45	13.78	9.7%
2014	1.42	12.57	13.99	10.2%
2015	1.19	12.05	13.24	9.0%
2016	1.15	12.68	13.83	8.3%

Note: * = Pelindo II, III, IV
Source: Statistik Perhubungan 2016

VS

Container Traffic

Country	2016
	Million (TEUs)
Peninsular Malaysia	23.8
Singapore	30.9

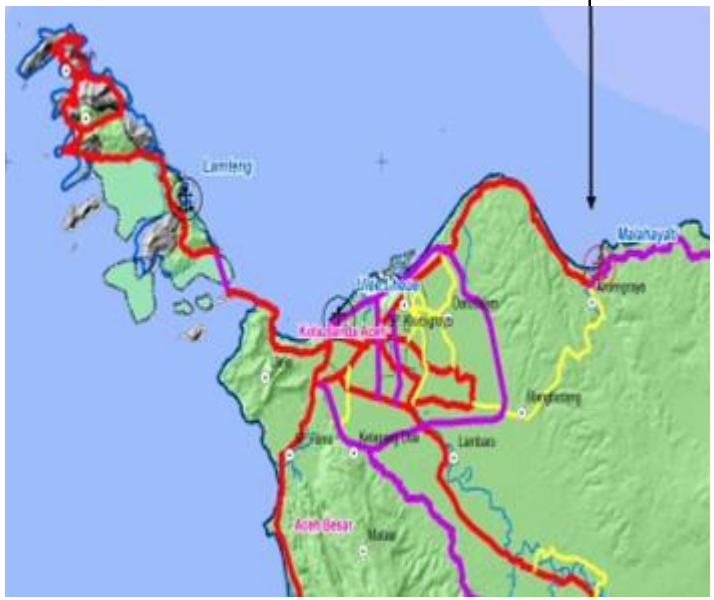
❑ Pelindo I is managing ports in Aceh, North Sumatera and Riau.

Source: Trends of The Selected Socio-Economic Indicators of Indonesia, March 2017

Malahayati Port

- Malahayati Port is located in the end of north Sumatra and 35km away from Bandar Aceh. In 2017, Malahayati Port is recognised as container terminal with a capacity of 35,000 TEUs[1].
- As part of port expansion projects, Malahayati Port has seen various improvements. Firstly, Pelindo 1 has prepared all facilities and equipment to support loading and unloading activities. The port can accommodate three vessels size of 100 meters with a load of 300 TEUs container at once. In 2016, Malahayati port served first container ship.
- Second, two shipping companies are providing a voyage from Tanjung Priok to Malahayati Port. Thi has lowered logistics cost from Rp17.5 million per container to Rp7.5 million per container. Third, travel time also reduced less than four days.
- However, the development of Malahayati Port is lagging behind compared to other four strategic ports identified. Domestic activities are the main contributor to the port.

Source: Google Map

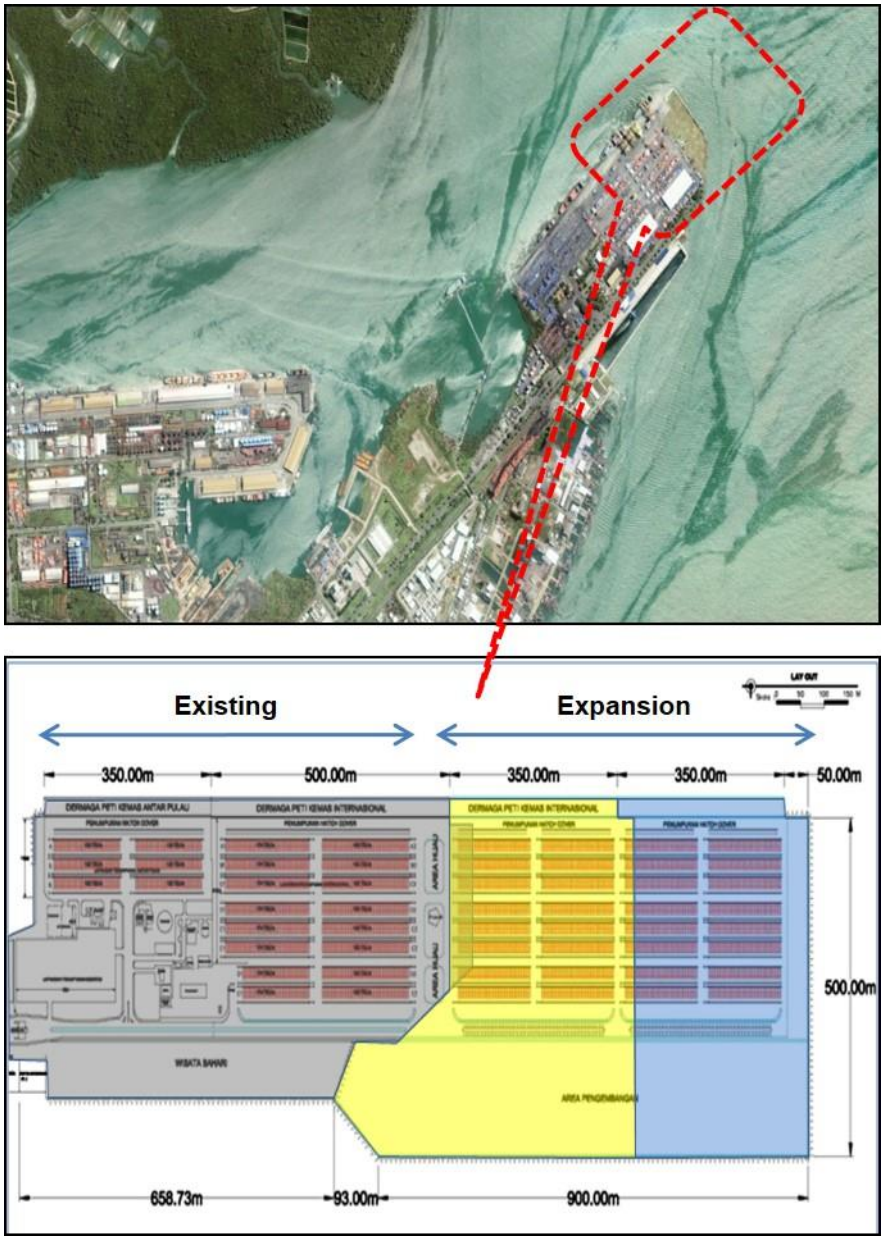


Source: CV. PROFESTAMA PLAN

Note: 1- Data from Buminsight Mei/Juni 2016

Belawan Port / BICT

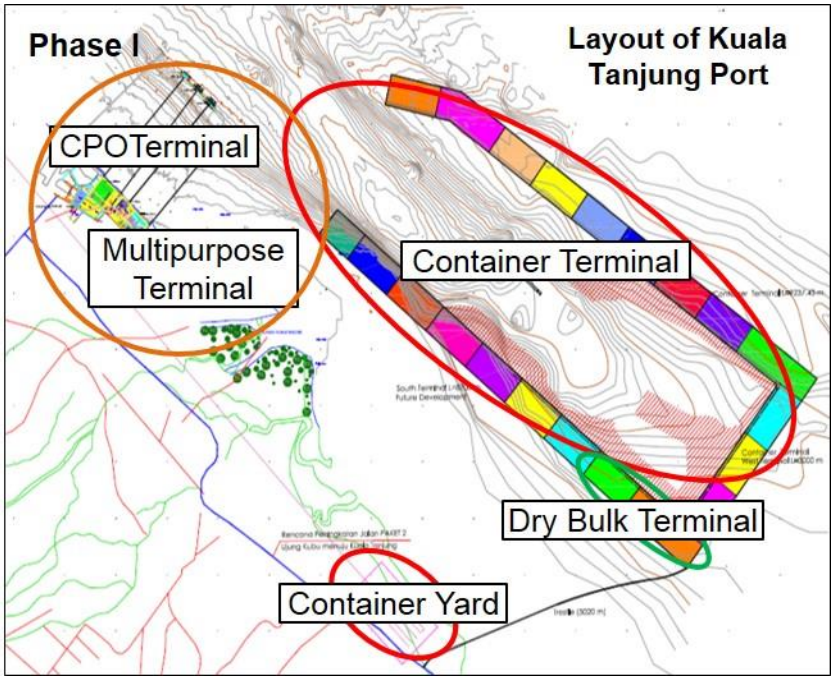
- Belawan port, operating since 1890 is 30km away from the capital of North Sumatra province, Medan.
- Port capacity is 1.2 million TEUs. In 2016, it handled 444,243 domestic TEUs and 463,463 international TEUs. Total container throughout increased by 9.2% pa from 830,843 TEUs in 2015 to 907,706 TEUs in 2016.
- This port also designed to service feeder ships between destination of Penang, Port Klang, Singapore to Tanjung Priok (Jakarta) and other local ports.
- In April 2016, a new 700-meters container terminal dock is being built in Belawan port and will complete by mid 2018. Port capacity will increase by 800,000 TEUs to two million TEUs.
- The Government decided to modernize and expand Kuala Tanjung port for handling busy commercial lane of Strait of Malacca. The Belawan port will be re-designated as agribusiness centre in North Sumatra.

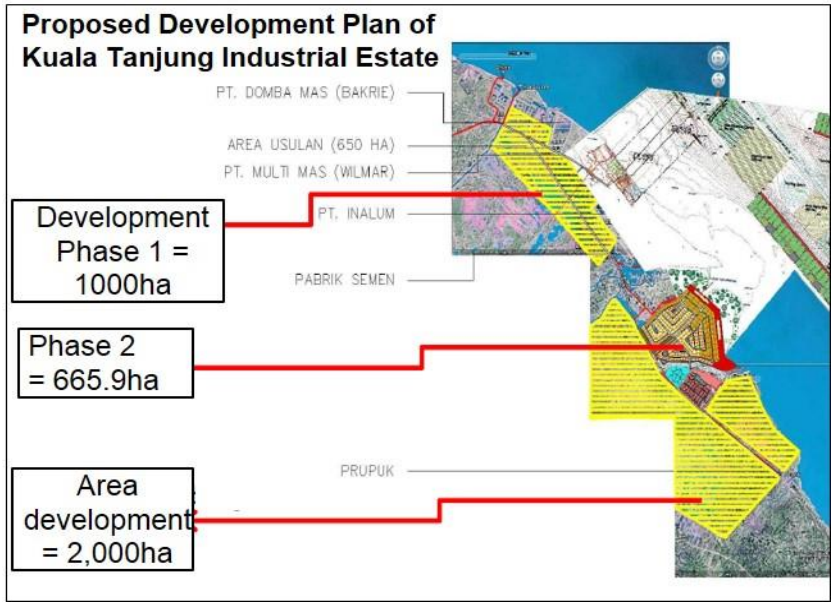


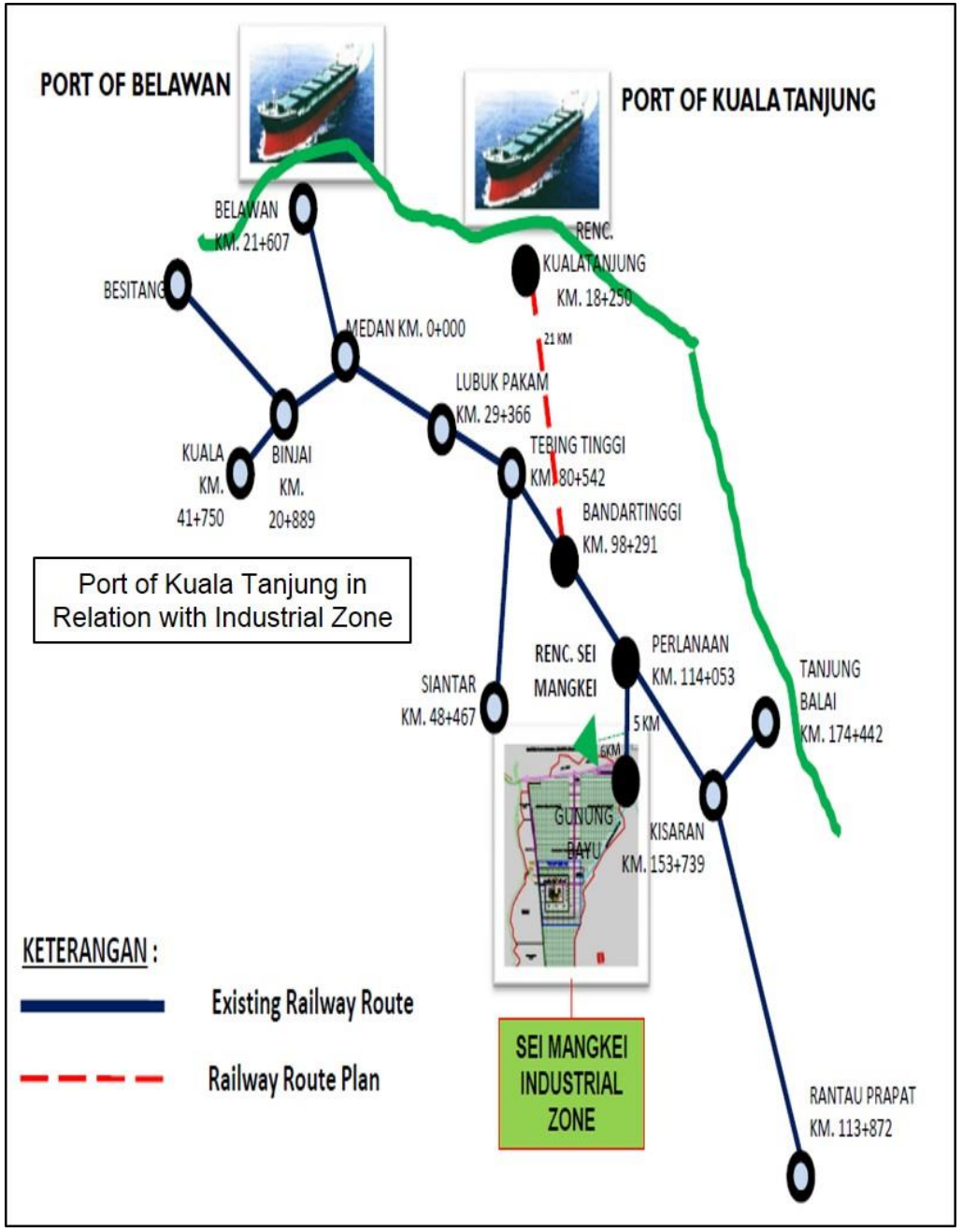
Source: Pelindo 1

Kuala Tanjung International Hub Seaport

- Kuala Tanjung port is an integrated-modern industrial gateway. As a gateway, the development goal focuses on lowering logistic costs and improving efficiency. It is the nearest to Port Klang compared to Belawan Port. Malaysia. A natural deep sea port is capable to vessel size up to ULCC.
- Kuala Tanjung will be developed to become the international hub port to handle liquid bulk cargo, dry bulk and general cargo, and container. It can potentially support Belawan port for bulk commodity as well as facilitate CPO export access abroad. While supporting the Sei Mangkei SEZ, Kuala Tanjung is also targeted as transit hub for shipments to Europe.
- A JV agreement with the Rotterdam Port Authority to develop it as a transhipment port. Indonesia had signed agreement (technical assistance contract) with DP World, which they will share expertise and experience to increase port's efficiency and services.
- Total investment value is about Rp34 trillion (roughly US$2.8 billion). The whole development consists of four phases:
  - Phase I: Development of a multipurpose terminal Kuala Tanjung (2015-2017)
  - Phase II: Industrial area development (3,000ha) (2016-2018)
  - Phase III: Development of dedicated / hub port (2017-2019)
  - Phase IV: Development of integrated industrial area (2021-2023)
- The port (Phase I) will start operation in 2018 with a capacity of 500,000 TEUs and three million tonnes of crude palm oil (CPO). Phase II will start construction in 2018. With full development, Kuala Tanjung port's capacity will be raised up to at least 20 million TEUs.

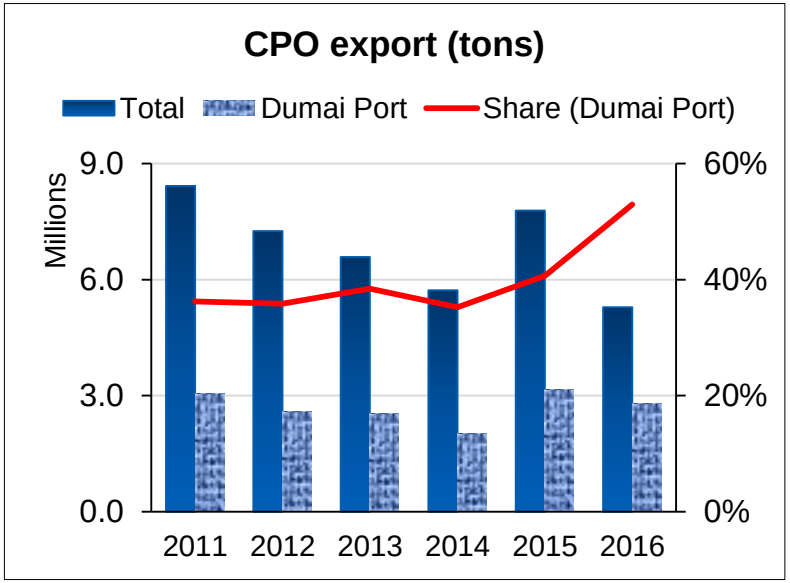

Phase I
Layout of Kuala Tanjung Port
CPOTerminal
Multipurpose Terminal
Container Terminal
Dry Bulk Terminal
Container Yard


Proposed Development Plan of Kuala Tanjung Industrial Estate
PT. DOMBA MAS (BAKRIE)
AREA USULAN (650 HA)
PT. MULTI MAS (WILMAR)
PT. INALUM
PABRIK SEMEN
PRUPUK
Development Phase 1 = 1000ha
Phase 2 = 665.9ha
Area development = 2,000ha


PORT OF BELAWAN
PORT OF KUALA TANJUNG
BELAWAN KM. 21+607
BESITANG
MEDAN KM. 0+000
KUALA KM. 41+750
BINJAI KM. 20+889
RENC. KUALATANJUNG KM. 18+250
21 KM
LUBUK PAKAM KM. 29+366
TEBING TINGGI KM. 80+542
BANDARTINGGI KM. 98+291
Port of Kuala Tanjung in Relation with Industrial Zone
SIANTAR KM. 48+467
RENC. SEI MANGKEI
PERLANAAN KM. 114+053
5 KM
6KM
GUNUNG BAYU
KISARAN KM. 153+739
TANJUNG BALAI KM. 174+442
KETERANGAN :
Existing Railway Route
Railway Route Plan
SEI MANGKEI INDUSTRIAL ZONE
RANTAU PRAPAT KM. 113+872

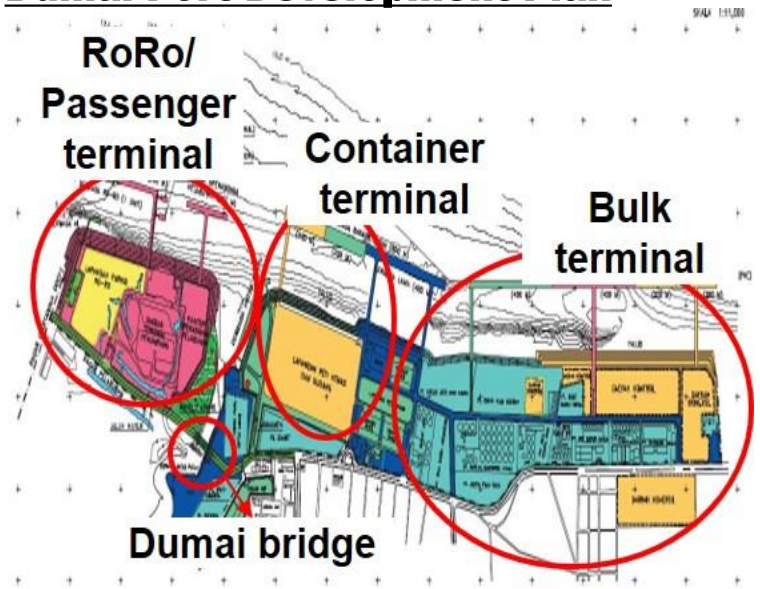
Dumai Port

- Despite the export volume of crude palm oil (CPO) fluctuating between 2011 and 2016, Dumai Port is the largest port for exporting crude palm oil (share: 52.97%) in Indonesia.
- According to Kompas (2017), Pelindo 1 plans to enhance the bulking facilities Dumai Port in 2018. When completed, it can handle 500 tons per hour compared to current only 200-300 tons per hour.
- The construction of Dumai bridge is expected to compete and become operational in 2018. Pelindo 1 is planning to expand Dumai's container service business encompasses 2.5 hectare land.
- Dumai also has the passenger terminal servicing Dumai-Melaka, and container port. Dumai port's container throughput recorded only 6,945 TEUs in 2016.
- At the October 2017 23rd ASEAN Transport Minister (ATM) meeting, the RoRo ferry service between Dumai-Melaka (Tanjung Bruas Port) is targeted to be launched in 2019.



Source: Indonesian Oil Palm Statistics

Dumai Port Development Plan



Source: dumai.pelindo1.co.id

Ports in Batam Island

- Batam island, which is 20km away from Singapore has high potential to become a transhipment port. Presently, free ports and tourism play a significant role in Batam's economy.
- Batu Ampar Port
  - Batu Ampar is very strategically located in the international shipping route and 18km to the South of Singapore. Port capacity is 600,000 TEUs. According to Batam Times (2017), Batam official and Pelindo Enterprises Agency (BP) are looking for investors to expand the port and improve facilities to shorten the dwelling time. The port capacity can potentially increase to two million TEUs. Container throughput up to August 2017 were 326,180 TEUs vs 358,798 TEUs in 2016.
- Tanjung Sauh Transhipment Terminal of Kabil Port
  - In 2013, a deep seaport should be built by China merchant group and port operator Pelindo II. The first phase of development (four million TEUs capacity) was supposed to be completed in 2015, the project had failed to take off because Pulau Tanjung Sauh was not part of the Batam Free Trade Zone[1].
  - Intended to be part of the corridor along with other ports of Medan, Jakarta, Surabaya,and Makassar and Sorong, Tg Sauh are intended to serve as transit points of smaller vessels for exports and imports. It is designated to handle transhipment containers of about 3.0 million TEUs.
- President Joko Widodo's goal is to boost connectivity in the Riau Islands province. A length of 7km bridge project (Batam-Pulau Tanjung Sauh-Bintan) is under the tendering process. Many investors, including China have submitted proposals.

Note: 1 = source from https://batampos.co.id/2017/03/01/pelindo-ii-tak-kunjung-bangun-pelabuhan-kontainer-di-tanjungsauh/

Source: Indonesia Public Private Partnerships 2017

Revival of BABIN Bridge Project – The total 7km bridge link Batam-Tg Sauh and Tg Sauh-Pulau Batu-Bintan can help to accelerate the development of trade and tourism in Bintan.

Potential impact from Sumatra

- Indonesian government has revised regulations and land policy to increase participation of foreign players. As a result, Rotterdam Port Authority and DP world have signed agreement to construct the port and sharing knowledge to develop Kuala Tanjung Port into international standard and become the main port in Sumatra.
- The outcome of Kuala Tanjung Port will define the next port development within North Sumatra. If it is a success, the high possibility of the port project will be Batam island due to:
  - Batam island posses geographical advantages (at the mouth of Strait of Malacca) to compete directly with Singapore Port
  - A 7km bridge project to enhance the hinterland connectivity
  - China investors' interests will return if there is amendment to SEZ law
- Better port services, simplified custom procedures and good maritime connectivity are main factors to create more seaborne trade. However, Indonesian government has issued several regulations[1] in setting up international hub ports. This acts as a barrier to enhance services at seaports.
- According to Seatrade Maritime (2017), Indonesian ports' dwelling time had dropped from 2.9 days in 2016 to 3.6 days in the first half-year of 2017. Thus, it is hardly making an immediate impact on ports in Malaysia and Singapore upon the completion of Kuala Tanjung Port.

Note: 1 – regulations under plans such as National Medium-Term Development Plan 2015-2019, the National Logistics System (Presidential Decree No.26 of 2012) and the National Port Master Plan 2012 (RIPN 2013)

SWOT analysis: Sumatra

Strengths

- Geographical advantages
- 56.1 million population in Sumatra
- Rich natural resources (natural gas, ore and etc.)
- Able to handle vessel size up to ULCC

Weakness

- Hardly achieve competitive pricing and full capacity in the early stage
- Inefficient port services
- Lacking of hinterland connectivity
- Limits on foreign control and right to private ownership and establishment

Opportunities

- Good investment prospects (infrastructure, manufacturing, energy and real estate)
- Increase intra-ASEAN trade
- Promote economic growth and socio-development

Threats

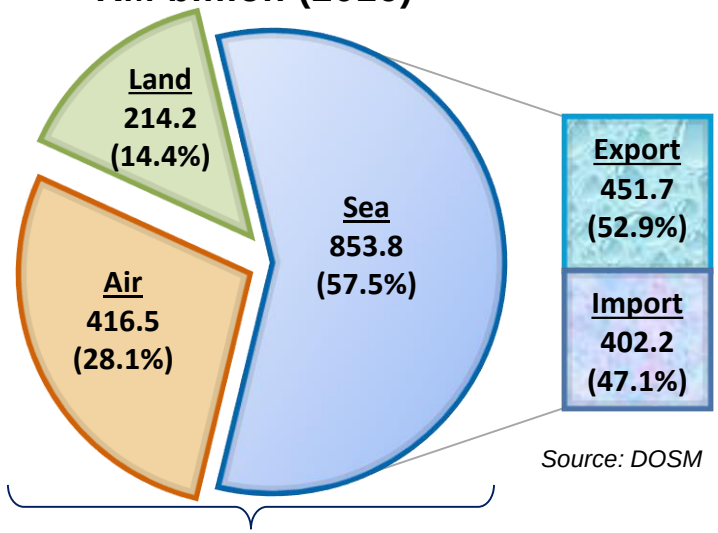
- High debt risk for the country
- Increase competitiveness within Strait of Malacca
- Potentially cause further congestion in Strait of Malacca
- Environmental issues

Section 3

A critical look at Malaysian Ports - Challenges, pitfalls and opportunities

Development of ports along the Strait of Malacca

Total trade by mode of transport
RM billion (2016)



Source: DOSM

Total Trade (2016) = RM1,484 billion

Location	Total trade by port			
	RM billion		13-16	2016
	2013	2016	CAGR	Shares
Port Klang	286	350	6.9%	41%
Johor Port	100	102	0.6%	12%
Penang Port	65	78	6.2%	9%
Tanjung Pelepas Port	35	50	12.6%	6%
Kuantan Port	27	18	(12.6%)	2%
Peninsular Malaysia	**513**	**598**	**5.2%**	**70%**
Other	**321**	**255**	**(7.3%)**	**30%**
Total	**834**	**853**	**0.7%**	**100%**

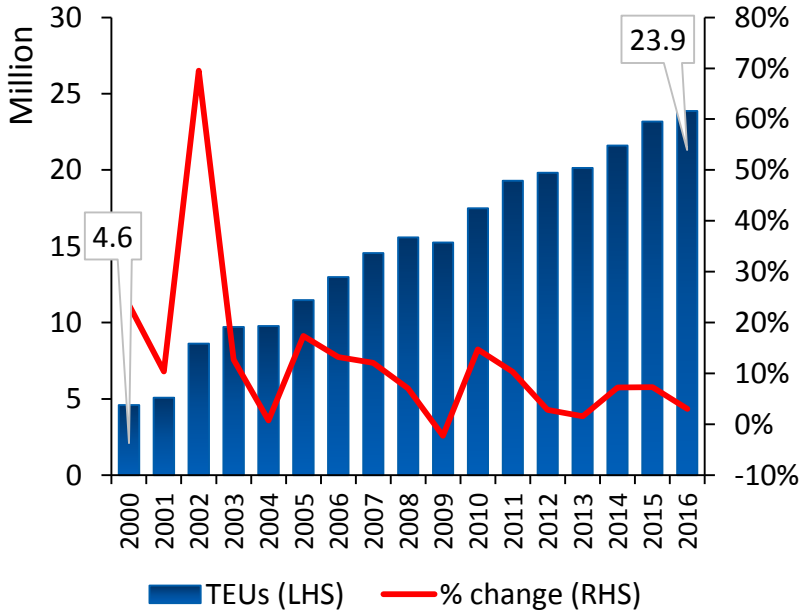
Note: Total Trade = import + export (exclude transhipment)
Source: DOSM

- In Malaysia, more than half of its total trade (RM854 billion) were seaborne in 2016.
- By seaborne, imports and exports were RM451 billion (52.9%) and RM403 billion (47.1%) respectively.
- Peninsular Malaysia is a major contributor (70%) in seaborne trade. Total trade increased by 5.2% pa from RM513 billion in 2013 to RM598 billion in 2016.
- Port Klang contributed about 41% of total trade by sea transport. 58% of Peninsular Malaysia market share was garnered by Port Klang[1].
- Total trade in Tanjung Pelepas grew by 12.6% pa from RM35 billion in 2013 to RM50 billion in 2016.
- Port Klang can handles more than 50% share of total trade by sea transport if there is capacity expansion and continued uptrend in trade.

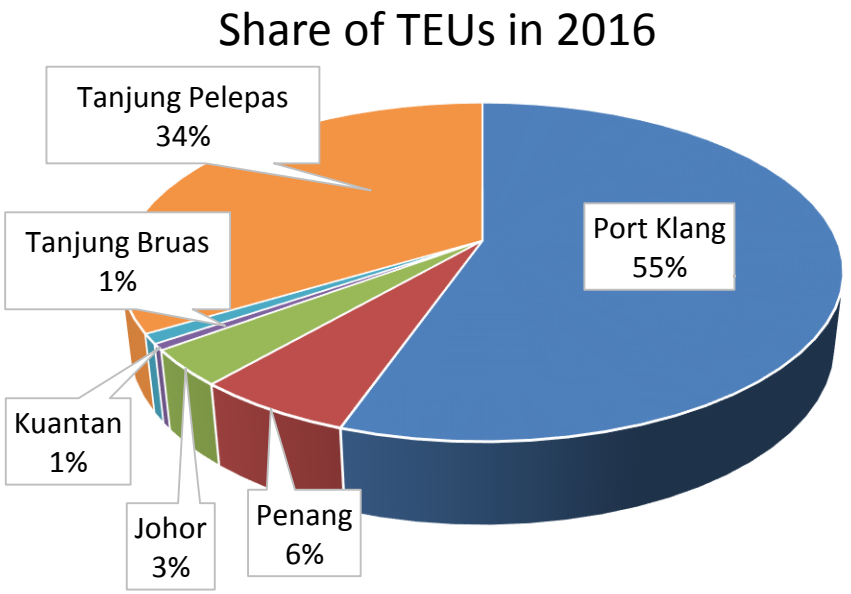
Note: 1= RM350 billion / RM598 billion = 58.5%

Peninsular Malaysia port outlook

- In 2000-2016, Peninsular Malaysia ports recorded a growth of 10.8% pa in TEUs, increasing at least 4 times from 4.6 million TEUs in 2000 to hit a new high record of 23.9 million TEUs in 2016.
- Nearly 90% of TEUs were contributed by Port Klang (55%) and Tanjung Pelepas (34%).
- In 2016, two ports in Peninsular Malaysia, i.e. Port Klang and Tanjung Pelepas, were listed as the top 50 container ports in the world.
- According to JOC (2017), Port Klang and Tanjung Pelepas were listed 11th and 19th respectively.



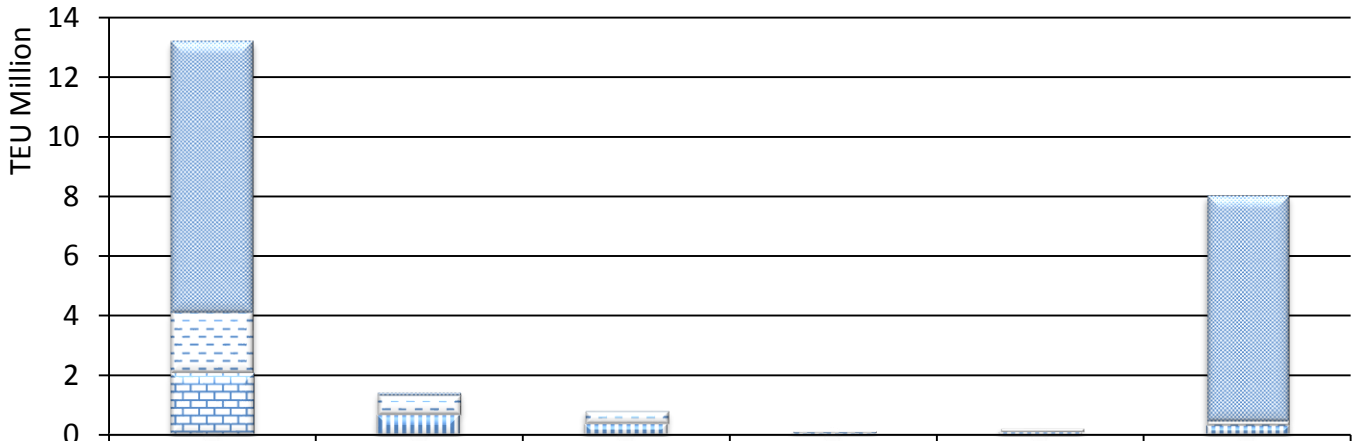
Source: MOT



Source: MOT

Container flows by port in 2016

- Port Klang achieved the highest record in terms of transhipment (9.1 million TEUs), imports (two million TEUs) and exports (2.1 million TEUs) compared to other ports.
- Tanjung Pelepas took second spot with about 7.5 million TEUs in transhipment. Other smaller ports mainly served their roles as daily import and export business activities.
- Massive import-export activities are still linked to Port Klang due to a well developed infrastructure and supported by efficient service provider in KL.
- It would be interesting to see how the new port capacities along the Strait of Malacca could further intensify competition for Southeast Asia's transhipment cargo.



	Port Klang	Penang	Johor	Kuantan	Tanjung Bruas	Tanjung Pelepas
Transhipment	9,107,314	94,334	24,234	0	5,134	7,545,182
Import	2,038,527	661,323	428,793	67,687	111,541	157,233
Export	2,063,736	681,463	373,986	73,952	108,653	326,569
% share of transhipment by port	69%	7%	3%	0%	2%	94%

Source: MOT

Scale and magnitude of port activities in Peninsular Malaysia

Port Klang

- Port Klang is mainly made up of two ports, namely Northport and Westport.
- Port Klang's geographical location makes it attractive to many ships from the eastbound leg and the last port of call on the westbound leg of the Far East–Europe trade route. Almost half of Malaysia's international trade goes through this port.
- Port Klang's operations consisting of containers (81%), bulk cargoes (12%) and others (7%).
- The number of ships calling at Port Klang rose by 2.1% pa from 11,439 in 1999 to 16,323 in 2016.
- Storage capacity in Port Klang was about 18.2 million TEUs in 2016.
- In 2016, Port Klang recorded 13.2 million TEUs and was ranked 11th out of 50 container ports in the world.

Note: Southport is now known as Northport's Southpoint. Southpoint caters mainly for the conventional domestic and coastal trade serviced by vessels plying between Port Klang and the ports in Sabah and Sarawak. This port acts as another facility in Port Klang for the handling of liquid bulk cargo, mainly palm oil and other non-DG liquid. Southpoint also acts as a niche port to handle transhipment activity for the Indonesian barge traffic due to its proximity to the Sumatran ports of Tanjong Balai, Dumai and Pekan Baru. The drafts range from 6 – 10.5 metres.

Port Klang - Westport

- Westport is operated by Westports Holding Berhad with a total capacity of 12 million TEUs.
- In 2016, container throughput was 9.95 million TEUs and port utilization rate about 83%.
- After the completion of expansion, the capacity will increase by 20% to 16 million TEUs by 2018.
- According to the Star (2017), the Government has approved the expansion of container terminal facilities (CT10 to CT19). By 2040, the port can handle up to 30 million TEUs.
- Container Terminal:
  - *No. of berths: 17*
  - *Depth: 15 – 17.5 metres*
  - *Length: 4,900 metres*
- Terminals for Conventional Cargo:
  - *Breakbulk: 3 berths / 600 m length*
  - *Liquid bulk:. 5 berths / 1,307 m*
  - *Dry bulk: 4 berths / 850 m*

Port Klang - Northport

- Northport is managed by MMC Group, which currently also operates Port of Tanjung Pelepas, Port of Johor, and Penang Port.
- With the upgradation of Container Terminal 4 (CT4), total capacity had increased to 6.2 million TEUs in 2016.
- In 2016, Northport had about 3.25 million TEUs in container throughput. Port utilization rate was about 52.4%.
- Container Terminal:
  - *No. of berths: 12*
  - *Depth: 11 – 15 metres*
  - *Length: 3,029 metres*
- Terminals for Conventional Cargo:
  - *Breakbulk: 9 berths / 6 – 12 m depth*
  - *Liquid bulk:. 4 berths / 10.5 – 11.5 m*
  - *Dry bulk: 2 berths / 12.5 m*
- In May 2017, a MoU[1] signed between North Port and Weifang Sime Darby Port to build a sister port relationship and facilitate halal trade shipment between Malaysia and China.

Tanjung Pelepas

- Port of Tanjung Pelepas (PTP) is a 70:30 JV between MMC and APM Terminal (part of Maersk Group). PTP was ranked 19th out of 50 container ports in the world in 2016.
- The container throughput increased from 37,539 in 2000 to 5.7 million TEUs in 2010 and rose further to 8.2 million TEUs in 2016.
- The number of vessels berthing in PTP also increased from 1,300 in 2000 to 4,162 in 2010.
- Container Terminal:
  - *Phase 1 (Berths 1 to 6) 2,160 m*
  - *Phase 2 (Berths 7 to 14) 2,880 m*
  - *Depth: Ranging from 15 – 19 m*
  - *Length: 5,040 metres*
- The storage capacity of PTP is 10.5 million TEUs. Phase 1 of expansion will complete in 2020, which is able to handle 13.5 million TEUs. By 2030, it is designed to handle approximately 22 million TEUs annually.

Johor Port

- Johor Port is strategically positioned in the heart of the 8,000-acre Pasir Gudang Industrial Estate, capitalizing on the transportation of commodities and industrials.
- It provides seamlessly integrated logistics package to customers, including internal and external haulage with transport across all modes.
- This port was awarded as the world's largest hub for palm oil.
- The container capacity is 1.2 million TEUs annually.
- In 2016, Johor port handled 827,013 TEUs compared to 750,466 TEUs in 2003.
- Container terminal:
  - *No. of Berths: 3; total length of 700m*
  - *Draught : 11.5 – 12 m*
- Terminals for Conventional Cargo:
  - *Breakbulk: Total length of 2.4 km*
  - *Draught up to 13.5 m*

Penang - North Butterworth Container Terminal (NBCT)

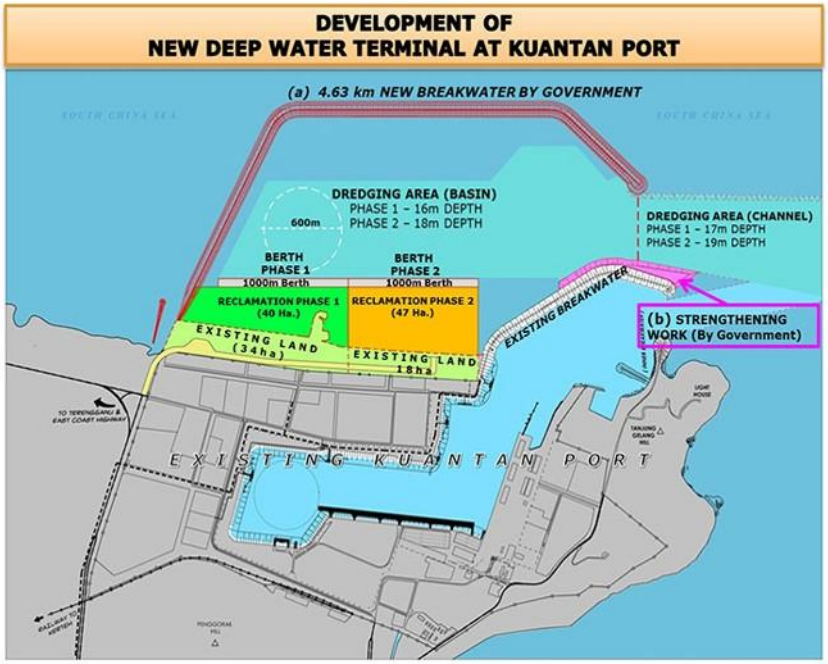
- Penang Port is the oldest and longest established port in Malaysia.
- The port is fully equipped to handle all types of cargo such as liquid dry bulk and break bulk.
- Penang Port's containerized cargoes are primarily handled at North Butterworth Container Terminal (NBCT). The handling capacity of Penang Port is up to two million TEUs.
- Being the third largest port in Malaysia by volume, the throughput had increased by 4.4% pa from 1.1million TEUs in 2010 to 1.43 million TEUs in 2016. This is twice of the 635,780 TEUs in 2000.
- In April 2017, MMC Corp Bhd acquired 51% equity interest of Penang Port Sdn Bhd (PPSB) at RM220 million.
- Container Terminal:
  - *No. of berths: 6 / 1,500 m in total length*
  - *Depth: 11 – 12 metres*

Tanjung Bruas Port (Melaka Port)

- Tanjung Bruas Port is a small terminal and located in the central of the Strait of Malacca.
- In 2015, container throughput was 225,328 TEUs. The container capacity is estimated about 300,000 TEUs.
- In May 2016, Malacca Port Authority (MPA) granted a new 30-year concession to KMB Seaport to operate Tanjung Bruas Port.
- In January 2017, MMC Corp Bhd bought 70% equity interest of KMB Seaport Sdn Bhd at RM 21 million.
- The earlier plan is to increase the port capacity. However, MMC Corp Bhd has yet to announce the development and expansion plan of the port after the takeover.

Kuantan Port

- Kuantan Port is a multi-cargo deep seaport facing South China Sea. Located on eastern seaboard, the connection to China and being part of China's strategic initiatives coupled with growing industries related to petrochemical manufacturing are positive strength for being a hub.
- In 2015, Guangxi Beibu Gulf International Port Group Ltd acquired 40% IJM stake on Kuantan Port Consortium. New Deep Water Terminal projects started in April 2015. The new deep water terminal with a draught of 16 meters is expected to complete in 2017, will be able to handle ships up to 200,000 dwt.
- In 2016, the container throughput was 141,639 TEUs compared to 62,783 TEUs in 2000. The East Coast Rail Line (ECRL) connecting the port with west coasts ports can be a game changer for trade, serving the ply between the Strait of Malacca and South China Sea that could bypass Singapore.
- When the expansion is completed, IJM estimates the capacity of throughput to reach 52 million freight weight tonnes and annual volume of container would reach 1.5 million TEUs.

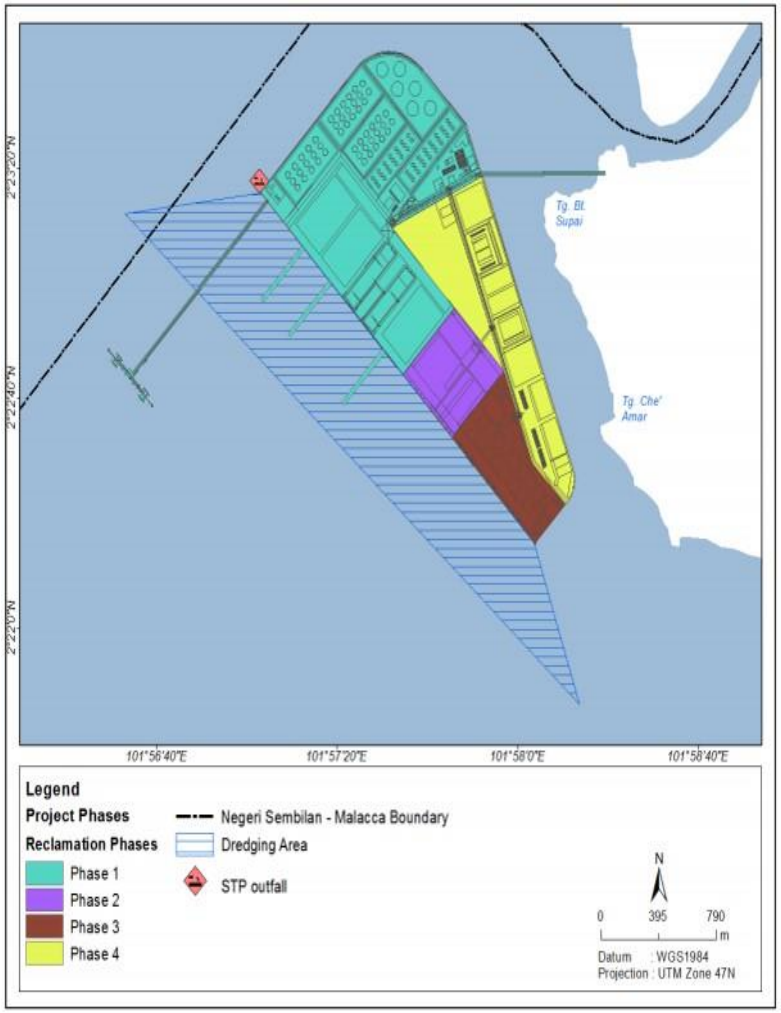


Other ports development projects

In addition to expansions of three major transhipment hubs, i.e. Port Klang, Tanjung Pelepas and Singapore, Malaysia has also embarked on new ports projects with Chinese investors

Kuala Linggi International Port (KLIP)

- The work on the construction of RM12.5 billion Kuala Linggi International Port project, funded by China Railway, Port & Engineering Group (CREC) has commenced in 2019.
- The port is developed on a 620-acre reclaimed land of 3.8 km in length, KLIP will include an access to 800m long access bridge; and a 1.3km in length liquid product jetty. Endowed with a natural depth at 30 metres, KLIP is conducive for serving large tankers.
- When completed, KLIP will mainly serve the oil and gas industry and transshipment of crude oil and petroleum products with its 1.5 million m^3 tank farm, dry docking facility, shipbuilding yard, etc
- While KLIP is aspired to take advantage of the congested Singapore's dominance in tanker shipping, its capacity is too small to compete with Singapore's current capacity of 20 million m^3 .



Melaka Gateway Port

- The Gateway project comes with extensive land reclamation, which is touted as the biggest port in the region catering for container and bulk cargoes.
- The RM30 billion Melaka Gateway is a joint project between KAJ Development Sdn Bhd (KAJD) and Power China International Group Ltd. The whole project started in 2015 and is expected to complete around 2025.
- The project involves the construction of four islands: Island 1 and 2 are for mix development (tourism, commercial and property) and free trade economic zone; Island 3 is designated for liquid cargo terminal to handle petroleum, chemical products and vegetable oil.
- The fourth island designated as container and bulk terminal, shipbuilding and repair, and Maritime Industrial Park. This island will be developed by KAJD with Guangdong, China and Chief Minister Incorporated (CMI).
- No information regarding to port's capacity while Melaka Gateway's website only stated container terminal is capable to receiving vessels up to 12,000 TEUs.
- According to Sinchew (2017), a deep seaport will be built by 2019 and has greater size than Singapore Port.

China-Malaysia Port Alliance (CMPA)

- The port alliance was established with ten Chinese ports and six Malaysian ports in November 2015. The objective is to foster mutual assistance and joint co-operation regarding port studies, communications and cooperation between the parties.
- Various projects have been proposed such as E-Port Community Exchange platform (sharing information database), training and development programs for port personnel, best practices in ports and logistics, port investments, increasing trade and trade facilitations.
- In 2017, the number of memberships increased to 21. Most of Malaysia's ports authorities have entered into port alliances.

China Memberships:	
1	Beibuwan Port Administration Bureau
2	Fujian Fuzhou Port Authority
3	Guangzhou Port Authority
4	Jiangsu Taicang Port Management Committee
5	Ningbo Zhoushan Port Group Limited
6	Port of Dalian Authority
7	Shenzhen Port & Cargo Transportation Bureau, Shenzhen Municipal Transport Committee
8	Port & Shipping Authority of Haikou City
9	Shanghai International Port Group Co. Ltd
10	Xiamen Port Authority
11	Qingdao Port ***(joined on Sep 2017)***
12	Tianjian Port ***(joined on Sep 2017)***

Malaysia Memberships:	
1	Port Klang Authority
2	Johor Port Authority
3	Kuantan Port Authority
4	Bintulu Port Authority
5	Penang Port Commission
6	Malacca Port Authority
7	Kemaman Port Authority ***(joined on Sep 2017)***
8	Kuching Port Authority ***(joined on Sep 2017)***
9	Sabah Ports Authority ***(joined on Sep 2017)***

Source: cmpa.asia, porttechnology.org

Malaysia Ports along the Strait of Malacca

Current status

- Ports located in Peninsular Malaysia (70% of total trade in sea) play as an important role in contributing Malaysia's seaborne trade.
- Excluding Kuantan port, total trade shipped via Peninsular Malaysia's ports have shown positive growth of 5.2% pa in 2013-2016.
- Peninsular Malaysia has witnessed an upward trend in container throughput. Port Klang and Tanjung Pelepas Port were listed as top 50 busiest container ports in the world.
- CMPA will increase more direct shipping routes, which can further promote bilateral trade and cooperation between Malaysia and China.

Challenges

- Everything that can be digitized will be digitized. Digitalization in seaports have to be in line with Industry 4.0 and the digital economy. According to TheLoadStar (2017), CMA CGM signed with Alibaba for online booking of container space, which is seen as an enhancement of B2B services.
- The Green agenda concerning the tracking of climate change will gradually influence the operation and transportation costa in the port industry. High port charges might be imposed on vessels operated by heavy fuel oil.
- With the size of containership keep on increasing, this compels port operators to install faster, smarter and better port equipment.

Malaysia Ports along the Strait of Malacca

Pitfalls

- Malaysia ports are facing lack of connectivity with other modes of transportation (railway and aviation). Exclude Port Klang, Tanjung Pelepas and Penang, other ports are lacking economies of scale.
- Quality of service is important than quantity of service. Singapore port, the 2nd of world busiest port, is transforming into automation and digitalization base, which provides more efficient port services.

Opportunities/prospects

- Investment prospects in developing a good hinterland connectivity (port-to-port or port-to-SEZ).
- Integrate the latest technology into port operation and system to improve efficiency at every point in supply chain.
- ASEAN is the third largest market (630 million population) in the world. Currently, ASEAN member states are developing and expanding their main ports and SEZ. Malaysia should focus in regionalization such as increase RO-RO services or barge routes.

SWOT analysis: Malaysian Ports along the Strait of Malacca

Strengths

- Geographical advantages
- Well-connectivity network with the world
- Good relationship between China and Malaysia
- Macroeconomic stability and investor friendly policies to attract FDI

Weakness

- Lack connectivity with other modes of transportation
- Lack of financing for expansion and upgradation
- Except for Port Klang and Tanjung Pelepas port, other ports have inadequate draft to cater to large vessels

Opportunities

- Investment prospects in the port's surrounding areas such as real estate
- Integrate latest technology into port operation and system
- Growing transhipment and import/export volumes
- Potential to become transhipment hub in the world and ASEAN

Threats

- Digitalization and automation era will disrupt the old model of port operation
- Price war if the number of port operators keep on increasing in Sumatra, Indonesia
- China's growing power dominance may inflict geopolitical tension

Section 4

Summary: Ports development in ASEAN and Malaysia

- Containerised cargos outlook remains positive. ASEAN constituted 13% share of container traffic in 2016. OECD estimates ASEAN's container traffic will reach about 231 million TEUs by 2030 and 520 million TEUs by 2050.
- Presently, the combined annual capacity of major ASEAN ports is approximately 117 million TEUs. With current on-going and future development plans, the combined capacity can potentially be increased to 246 million TEUs.
- ASEAN becomes the most important manufacturing location and global supply chain worldwide. Each ASEAN country is developing its own Special Economic Zone (SEZ) or industrial zone to attract foreign direct investment (FDI). Some SEZ were designed to target specific foreign investors such as China and Japan.
- ASEAN member states are expanding their main ports capacity to cope with future demand and strengthen hinterland connectivity between the ports and SEZ. The port authorities need to have appropriate strartegies to improve the competitiveness of their ports.
- The gaps of ports development in ASEAN are widening. A majority of ASEAN member states are facing lack of shipping connectivity, poor quality of ports infrastructure and inefficient of logistics services as well as congestion problems due to lack of berth and depth. Ports in Myanmar and Cambodia are underdeveloped (handling less than one million TEUs), and hence may hinder free flows of goods. And, Singapore is pushing forward the digitalization and automation of its port to be in a well established good position.

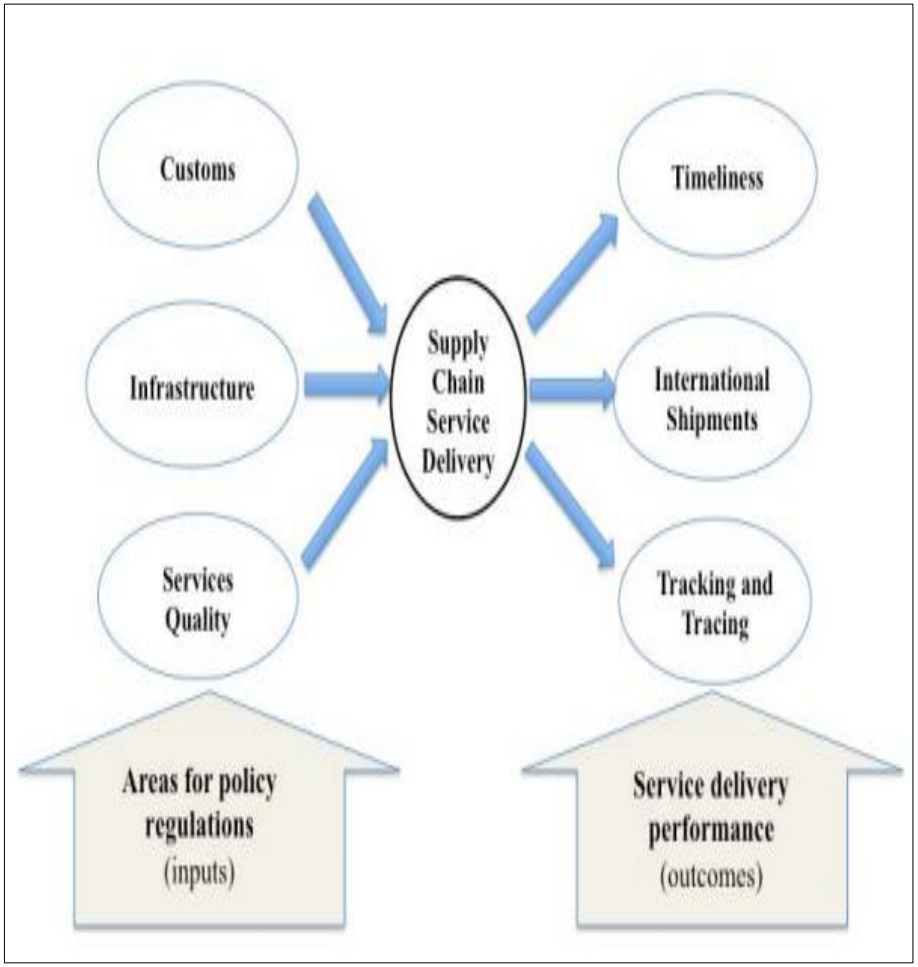
- Indonesia is placing more focus on developing its maritime infrastructure, particularly the three islands of Sumatra, Jawa and Sulawesi. Sumatra's port development if runs efficiently can pose a threat to port operators in Malaysia and Singapore. The magnitude of impact will depend on the results and operation in Kuala Tanjung port in 2018. It also gives a precursor to whether Indonesia government is planning to build another mega ports in Batam Island or Malahayati.
- In terms of maritime perspective, Malaysia still has competitive advantages in ASEAN region --- a well-connected to global shipping networks (ASEAN ranking: 2nd), good quality of port infrastructure (ASEAN ranking: 2nd), and efficient trade logistics services (ASEAN ranking: 2nd).
- The container throughput in Malaysia registered positive growth of 10.2% pa from 2000 to 2016 and 57.5% of total trade generated from seaborne trade in 2016. Port Klang and Tanjung Pelepas are expanding their capacities up to 30 million TEUs and 22 million TEUs respectively. Going forward, the implementation of major infrastructure projects would strengthen hinterland connectivity in Malaysia.
- The enhanced and growing bilateral trade between China and Malaysia is expected to expand significantly in years ahead, driven by the formation of CMPA, Kuantan Port's development and Melaka gateway project involving China investors.
- The general assessment of the development Carey Island port will be addressed in Part III of this research paper.

Appendix

- **Logistics Performance Index**
- **Master Plan – New Priok Terminal**
- **Special Economic Zone (SEZ) in Sihanoukville**
- **Sihanoukville Port: Extra Long-Term Plan (2040-)**

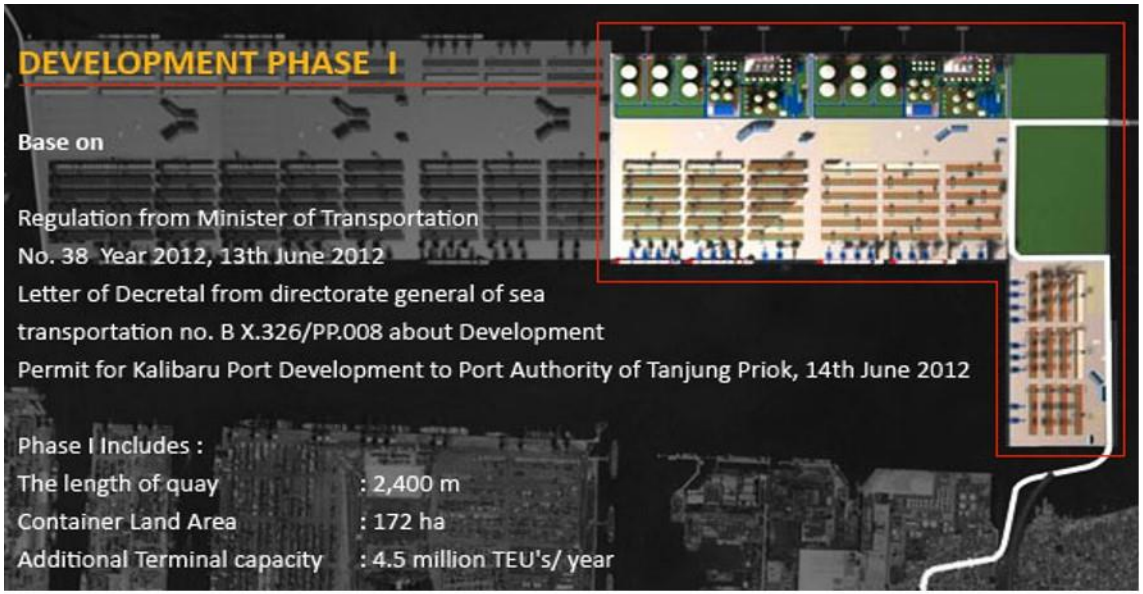
Logistics Performance Index (LPI)

- Logistics Performance Index (LPI) measures country's performance on trade logistics regarding to areas for policy regulations and service delivery performance.
- Six key indicators in LPI:
  - **Customs:** the efficiency of customs and border clearance
  - **Infrastructure:** the quality of trade and transport infrastructure
  - **International shipments:** the ease of arranging competitively priced shipments
  - **Services quality:** the competence and quality of logistics services including trucking, forwarding, and customs brokerage.
  - **Tracking and tracing:** the ability to track and trace consignments
  - **Timeliness:** the frequency with which shipments reach consignees within scheduled or expected delivery times.



Source: Arvis et al. (2014)

Master Plan – New Priok Terminal



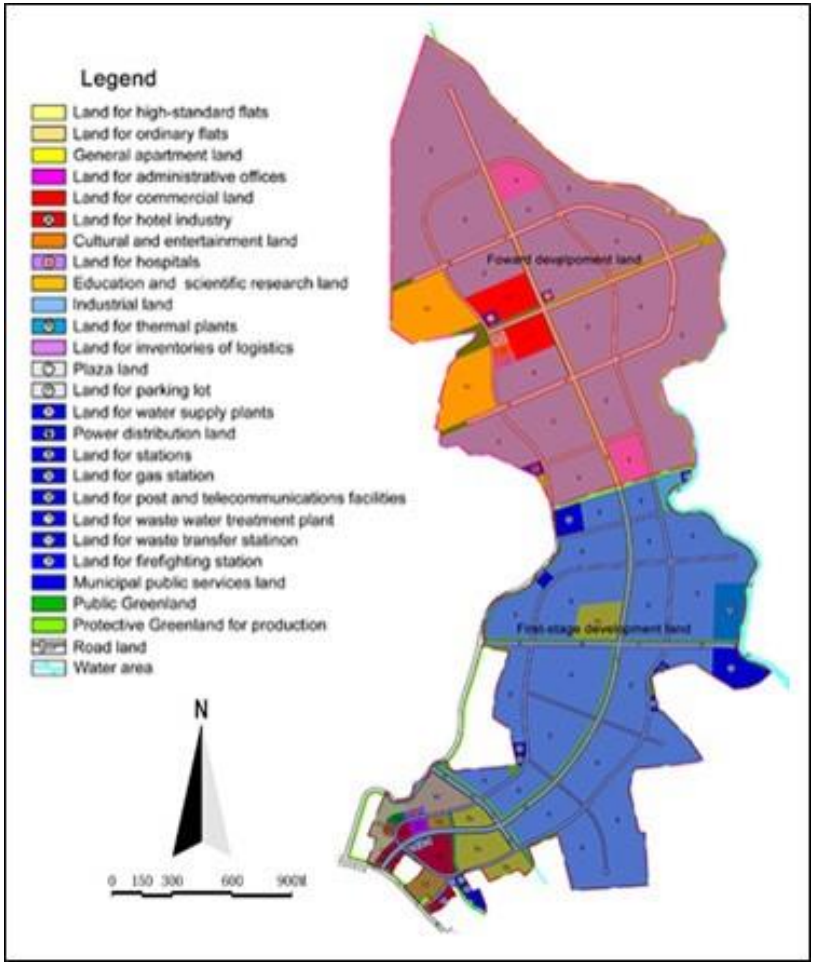
Terminals Accommodated in the Long Term Master Plan

Terminal	Type	Capacity
Development Phase 1		
CT1	Container	1.5 mil TEUs/year
CT2	Container	1.5 mil TEUs/year
CT3	Container	1.5 mil TEUs/year
PT1	Petroleum Products	500,000 m3
PT2	Petroleum Products	500,000 m3
Development Phase 2		
CT4	Container	2.0 mil TEUs/year
CT5	Container	2.0 mil TEUs/year
CT6	Container	2.0 mil TEUs/year
CT7	Container	2.0 mil TEUs/year

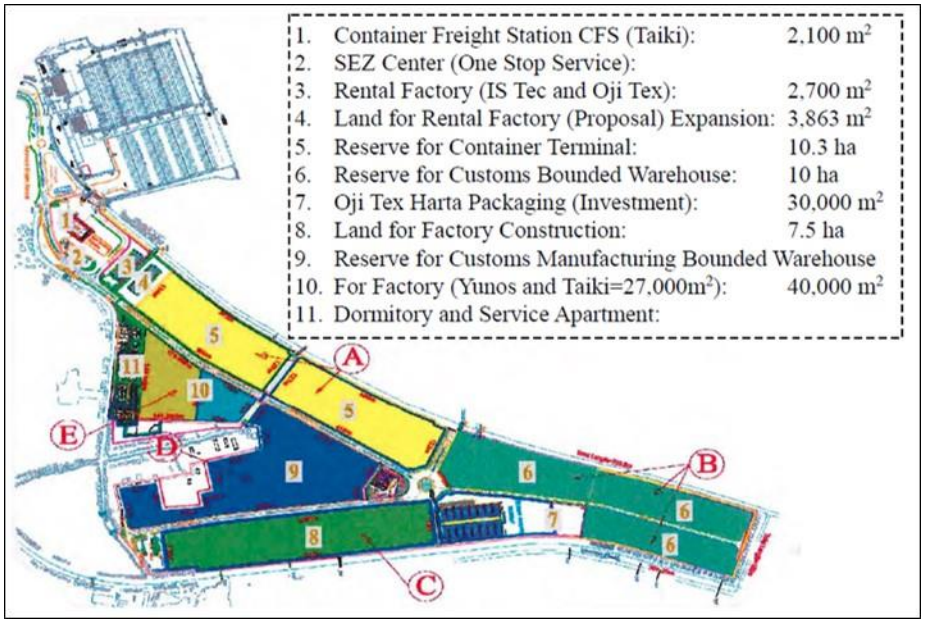
Source: PT. Pelabuhan Indonesia II

Special Economic Zone (SEZ) in Sihanoukville

Sihanoukville SEZ



Sihanoukville Port SEZ



Sihanoukville Port: Extra Long-Term Plan (2040-)

Source: PAS

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THANK YOU

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