



"Where will our knowledge take you?"

# Looking Ahead: The Port Industry

How Ports and Terminal Operators  
in Southeast Asia Respond to  
the Changing Global Market Trends

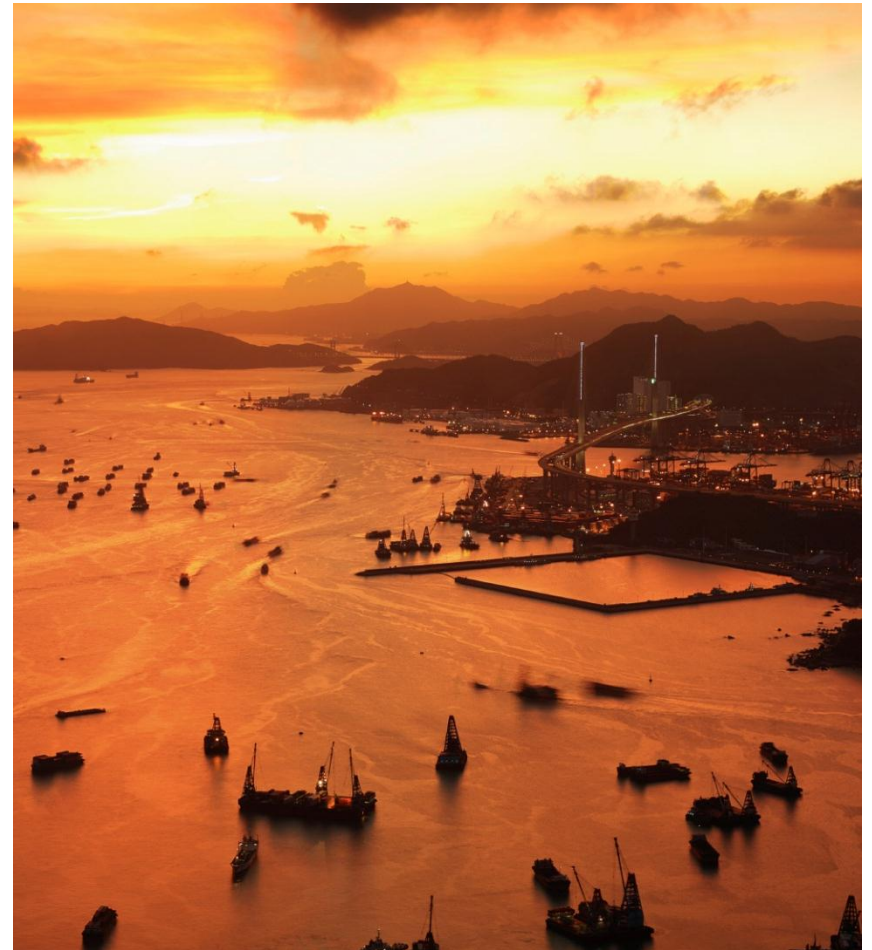
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Dr. Simon Su  
Director & Chief Economist, BMT Asia Pacific Ltd



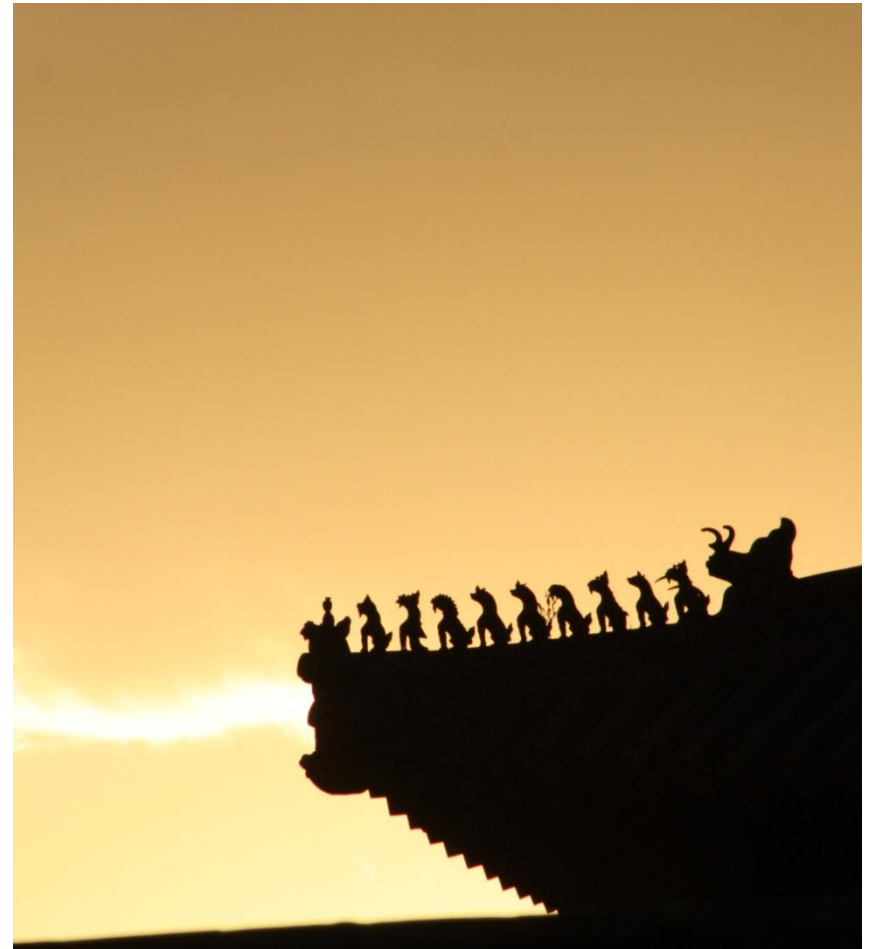
# Overview of the Global Port Sector

- Ports are evolving rapidly from traditional land and sea interfaces to *providers of complete logistics networks*.
- *Port traffic has risen at an average of 3% per year* due to globalisation of trade and the growth in sea transport.
- New port infrastructure has been planned, improvements in port services have been designed and *new technologies are being applied to boost port competitiveness*.
- *Ports are upgrading to accommodate the trend of mega vessels* currently approaching 20,000 TEU.



# Overview of the Asian Port Sector

- Competition among Asia Pacific ports are heating up, particularly for *transshipment activities*.
- A *hub and spoke* model drives leading Asian ports to form collaboration with major shipping lines.
- *Intra-Asian trade* is growing rapidly and driving up demand for port services.
- More of Asia's port operators are *acquiring foreign ports* to gain control of international shipping routes and at the same time have direct access to raw materials.
- *Maritime services, offshore and freight forwarding* are expected to be the fastest growing areas.

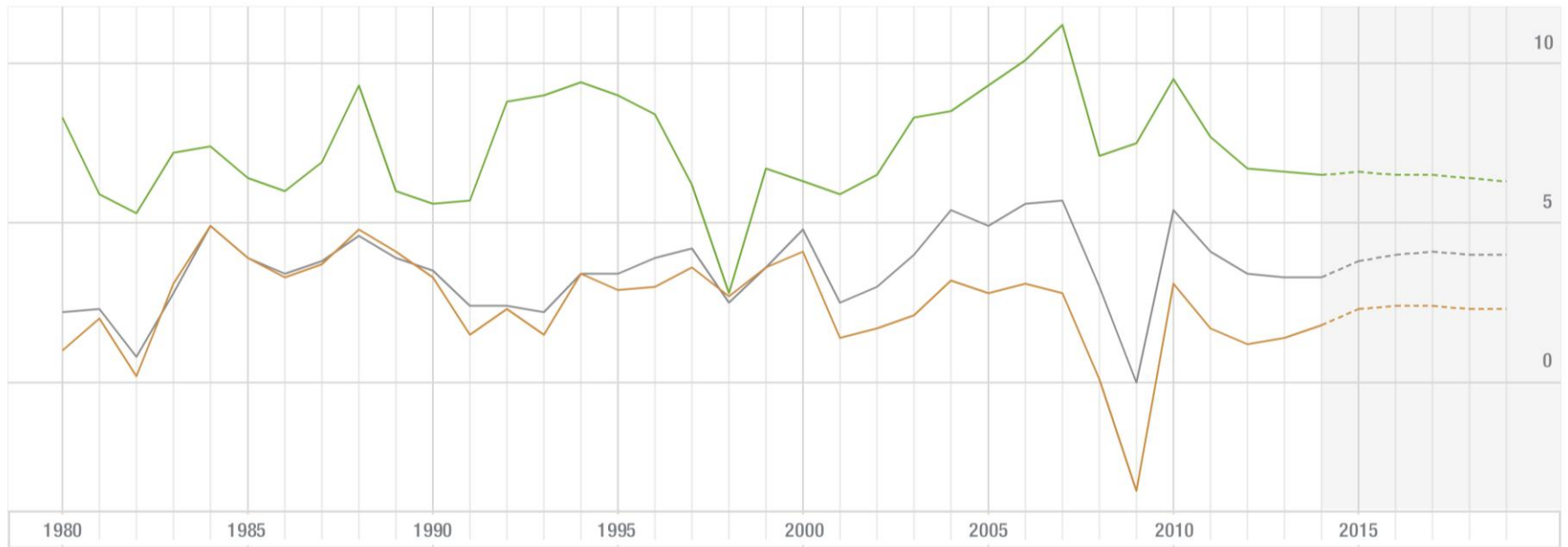


# Asian Emerging Markets Outperformed the World Average

IMF Data Mapper ®

Real GDP growth (Annual percent change)

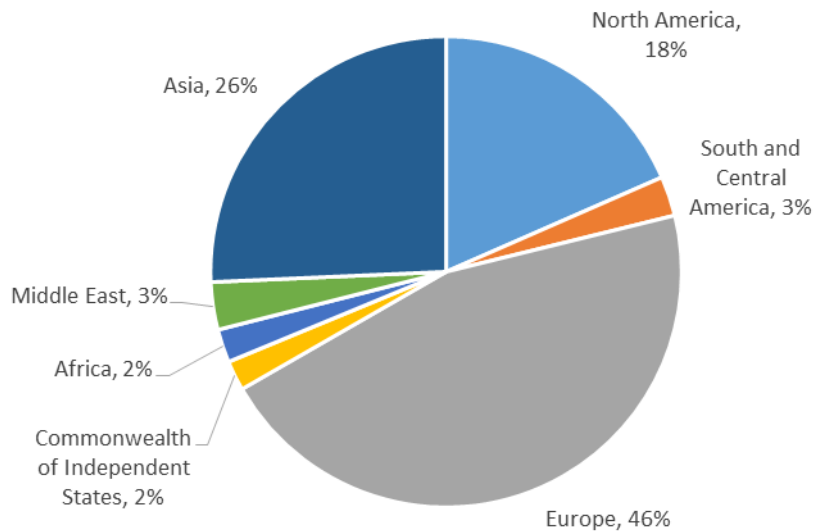
- Emerging Market and Middle-Income Economies
- World
- Advanced economies



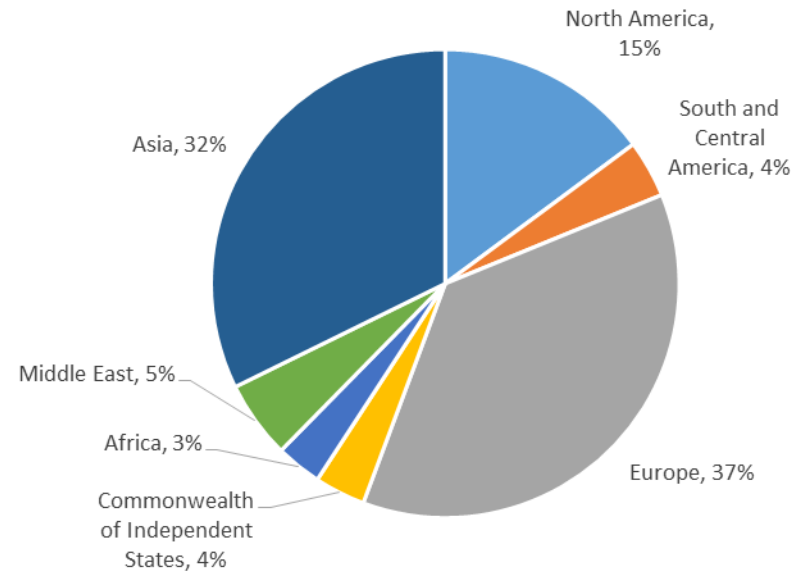
©IMF, 2012, Source: World Economic Outlook (October 2014)

# Trade in Asia Continues to Grow Rapidly

World Trade by Region 2003



World Trade by Region 2013



Source: WTO

- Asian economies are an important component of world trade;
- Asia's rise have corresponded with declining shares for North America and Europe

# Top 30 Container Ports Worldwide in 2013

## 21 ports in Asia

| Rank | Port            | Million TEUs |
|------|-----------------|--------------|
| 1    | Shanghai        | 33.6         |
| 2    | Singapore       | 32.6         |
| 3    | Shenzhen        | 23.3         |
| 4    | Hong Kong       | 22.4         |
| 5    | Busan           | 17.7         |
| 6    | Ningbo-Zhoushan | 17.3         |
| 7    | Qingdao         | 15.5         |
| 8    | Guangzhou       | 15.3         |
| 9    | Jebel Ali       | 13.6         |
| 10   | Tianjin         | 13.0         |
| 11   | Rotterdam       | 11.6         |
| 12   | Dalian          | 10.9         |
| 13   | Port Klang      | 10.4         |
| 14   | Kaohsiung       | 9.9          |
| 15   | Hamburg         | 9.3          |

| Rank | Port                | Million TEUs |
|------|---------------------|--------------|
| 16   | Antwerp             | 8.6          |
| 17   | Keihin              | 8.4          |
| 18   | Xiamen              | 8.0          |
| 19   | Los Angeles         | 7.9          |
| 20   | Tanjung Pelepas     | 7.6          |
| 21   | Long Beach          | 6.7          |
| 22   | Tanjung Priok       | 6.6          |
| 23   | Laem Chabang        | 6.0          |
| 24   | Ho Chi Minh         | 6.0          |
| 25   | Bremen/Bremerhaven  | 5.8          |
| 26   | Lianyungang         | 5.5          |
| 27   | New York-New Jersey | 5.5          |
| 28   | Hanshin             | 5.3          |
| 29   | Yingkou             | 5.3          |
| 30   | Jeddah              | 4.6          |

Greater China

Malaysia

Indonesia

Non-Asian

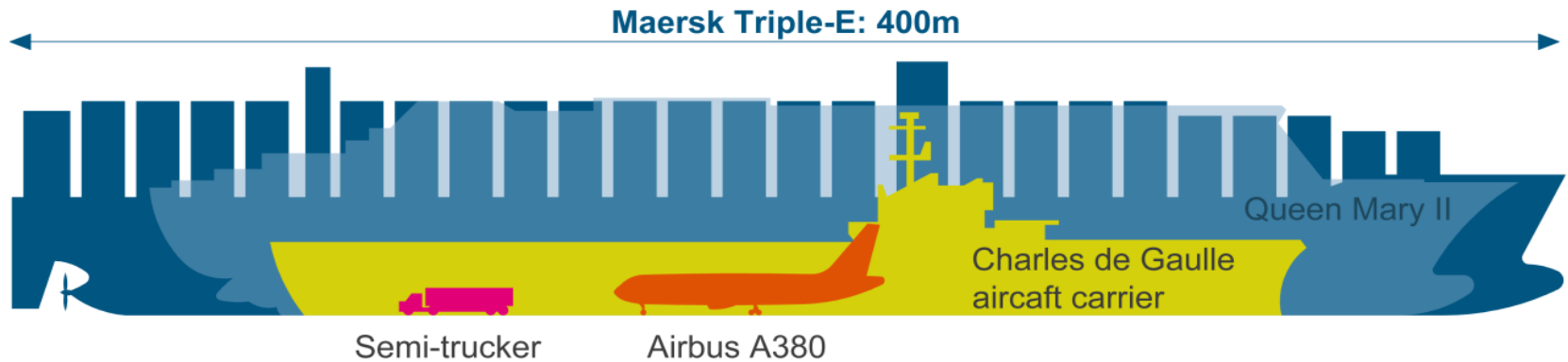
# Key Issues

# Increasing Size of Ocean Going Vessels

Mega vessel size will rise to 22,000 TEUs in the near future. The impact?

- Fewer calls
- Demand for facilities upgrades
- Preference for high performing ports
- Requirement on connectivity, whether the ports provide enough feeder routes

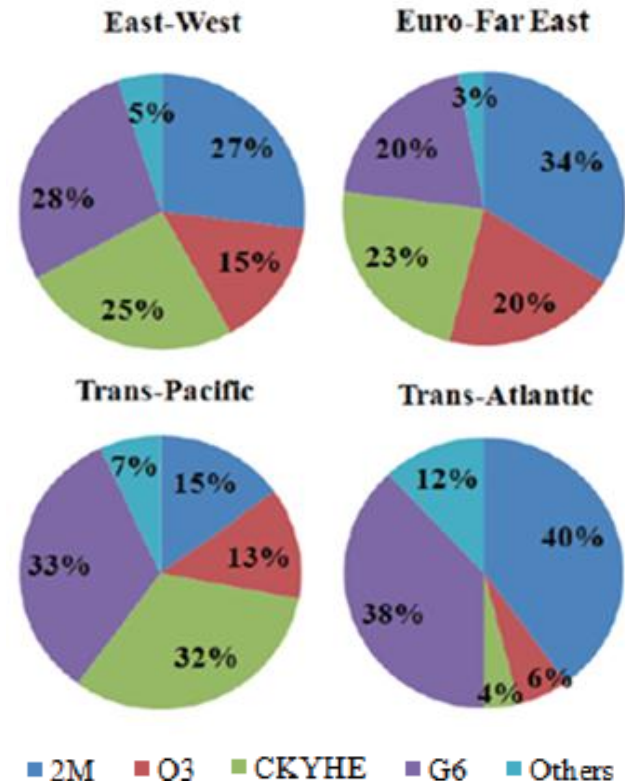
| Draught (m)  | TEU Range       |                        |
|--------------|-----------------|------------------------|
| 9.0<br>10.0  | 500 - 2,500     | Early container vessel |
| 11.0<br>12.0 | 2,500 - 4,500   | Panamax                |
| 13.0<br>14.0 | 4,500 - 8,000   | Post Panamax           |
| 15.0         | 8,000 - 12,500  | New Panamax            |
| 15.5         | 12,500 - 18,000 | Triple-E               |





# Alliance of Major Shipping Lines

- Recently formed by Maersk and MSC, the M2 Alliance is the world's largest container collaboration
- Another development is the O3 container shipping alliance formed by CMA CGM, China Shipping Container Lines and United Arab Shipping
- Impact of increasing liner alliance:
  - Operate very large vessels, smaller ports will be cut off
  - Rationalise port calls to bring cost advantage
  - Better resource allocation will further streamline operations



Source: Maritime Insight

# ASEAN – China Free Trade Area (ACFTA)

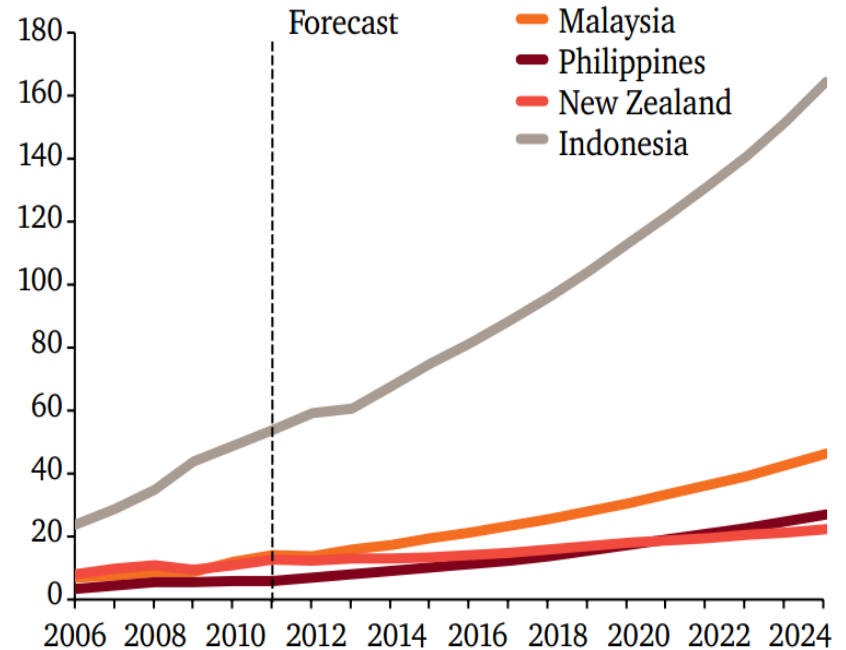
- Agreement activated in 2010
- Trade between China and ASEAN grew rapidly due to **tariff cuts and ease of trading**
- Trade between **Guangxi (main gateway in China)** and ASEAN reached US\$12 billion in 2012, almost doubled in two years
- Challenges to growth include:
  - Inadequate port / inland infrastructure
  - Cumbersome bureaucracy



# Infrastructure Development in Emerging Asia

- Increasing demand from intra-Asian trade is putting **pressure on existing infrastructure**
- **Migration of industrial activity** into SE Asia will result in massive exports
- Indonesia and Malaysia initiated national plans for infrastructure development
- Port **expansion and improvement of inland connectivity** (e.g., road, barging and rail) are priorities;
- Reducing cost of moving cargo in both domestic and international markets

Total Infrastructure Spending Per Year  
(USD Billion)

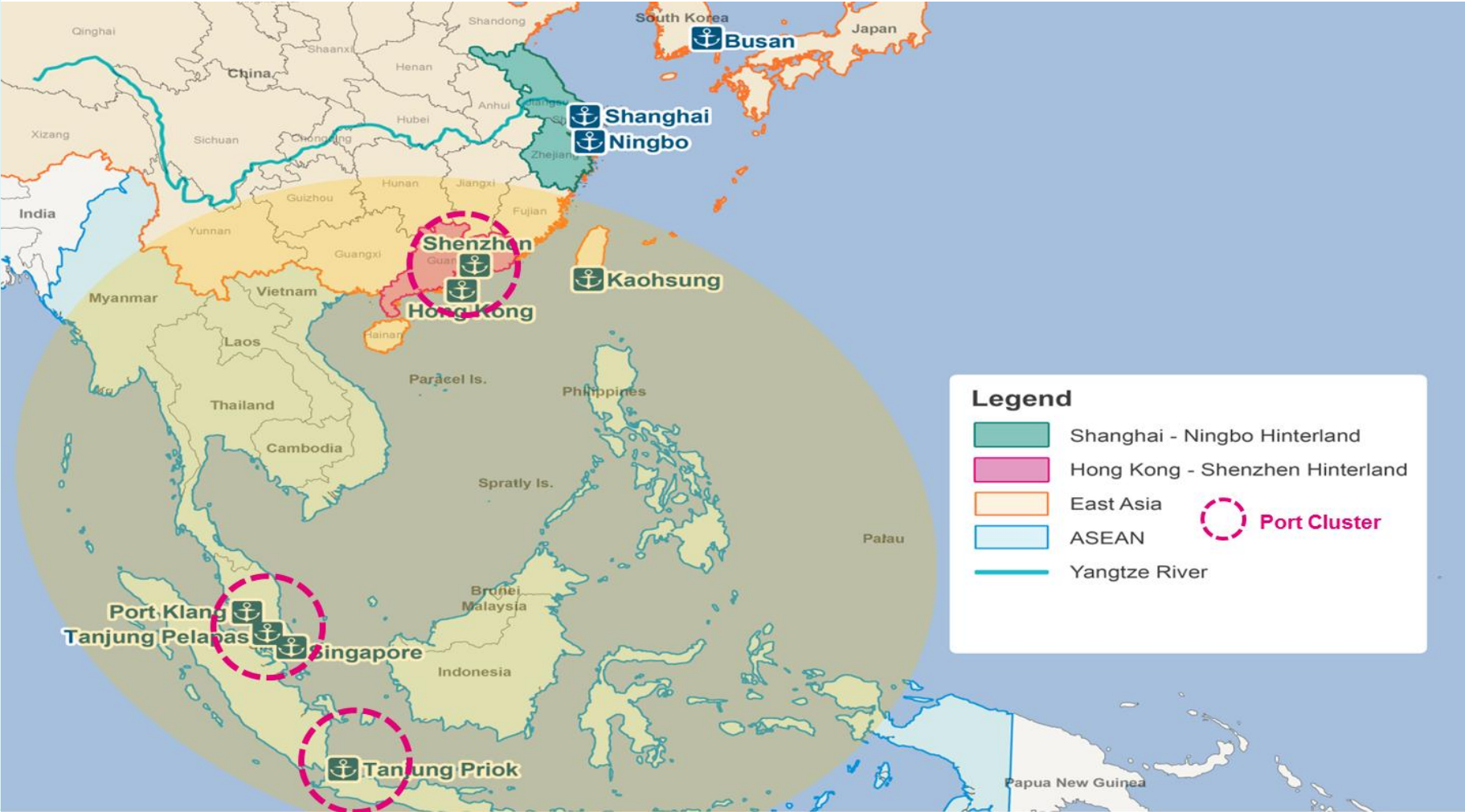


Source: Oxford Economics, PWC

## Regional Port Clusters

- Pearl River Delta
- Strait of Malacca
- Indonesia

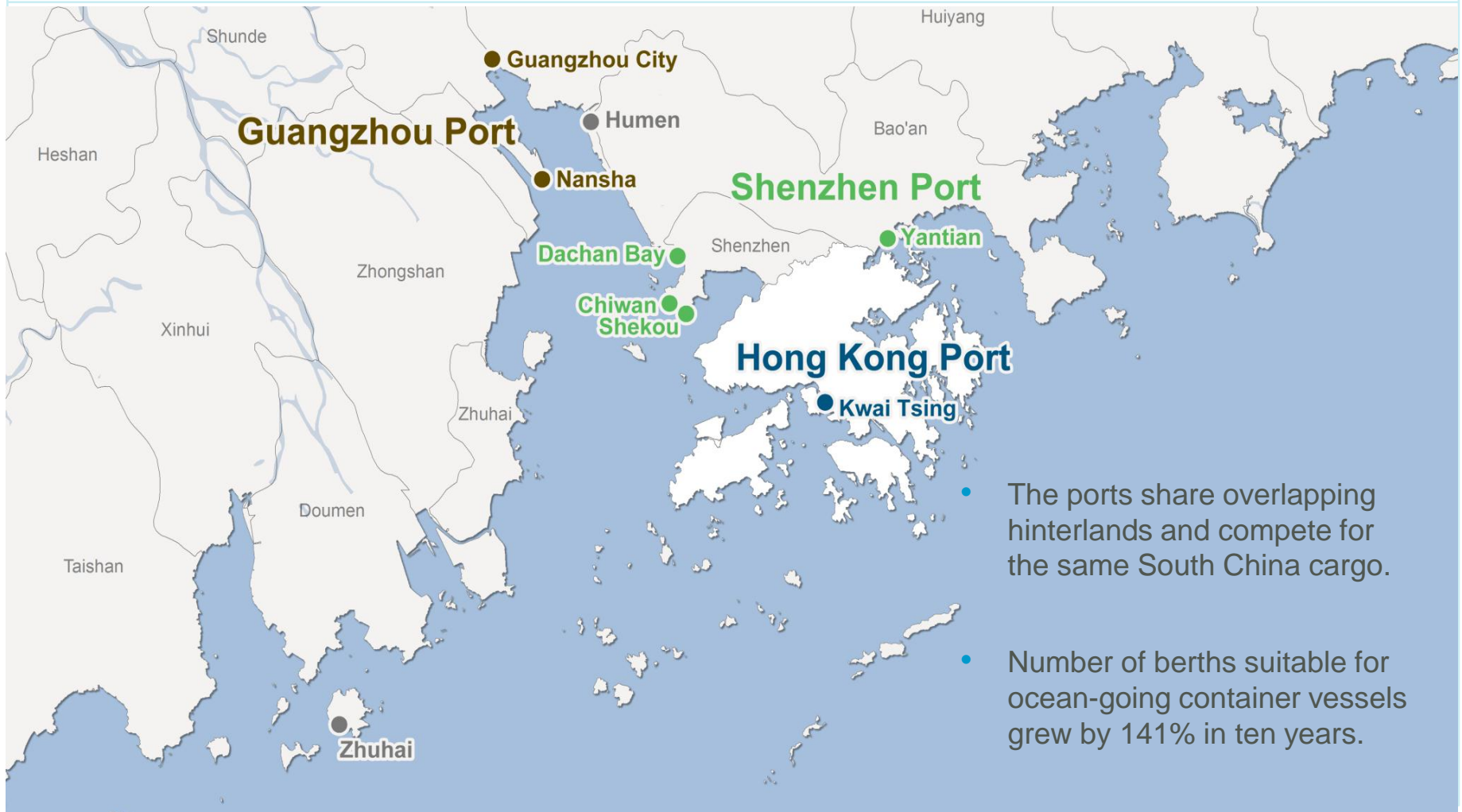
# Regional Port Clusters



**Legend**

- Shanghai - Ningbo Hinterland
- Hong Kong - Shenzhen Hinterland
- East Asia
- ASEAN
- Yangtze River
- Port Cluster

# Major Container Ports in the Pearl River Delta (PRD)



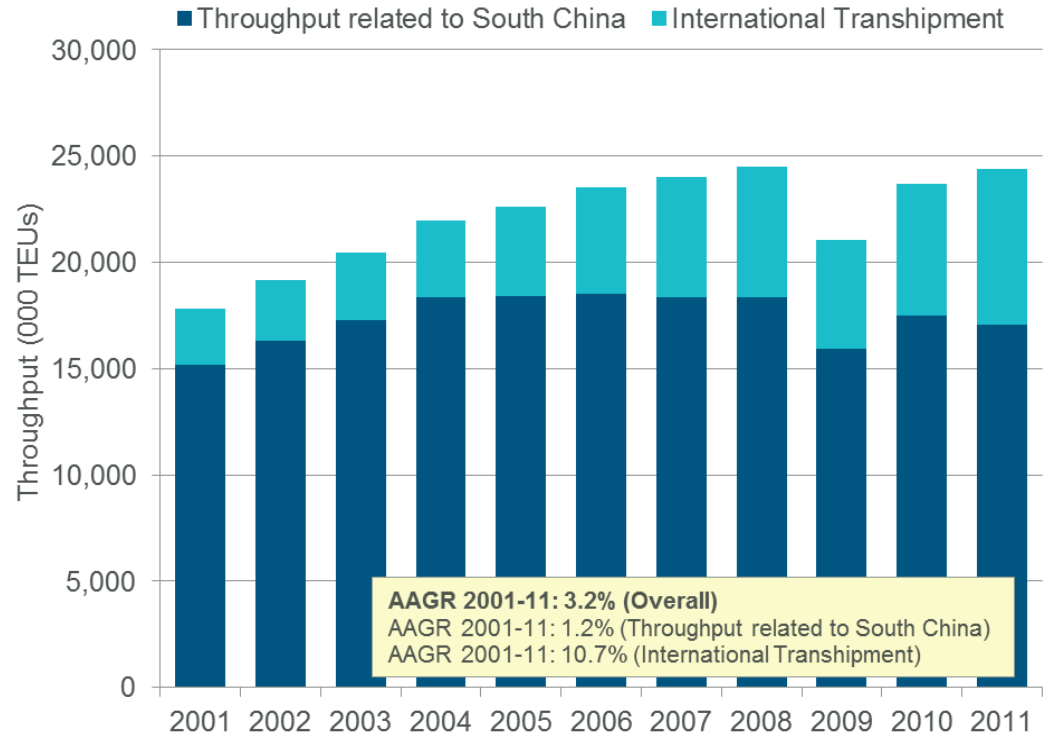
# Historical Port Throughput Hong Kong

## South China Cargo:

Declining market share due to competition, but the rate of decline is diminishing; no longer the main driver of growth.

## International transshipment:

Increasingly significant due to growth in world trade, trends in shipping, and efforts by HKP to attract throughput.



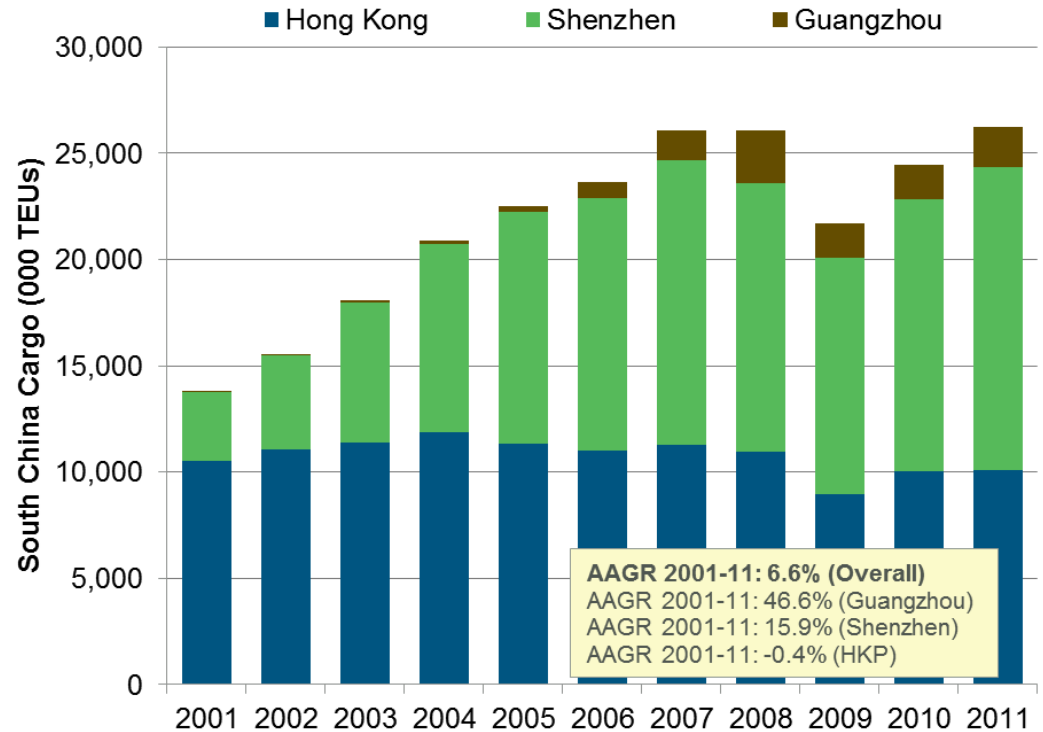
# Historical Port Throughput Shenzhen and Guangzhou

## Shenzhen:

A combined total of 41 berths for ocean vessels; throughput growth 16% p.a. overall.

## Guangzhou:

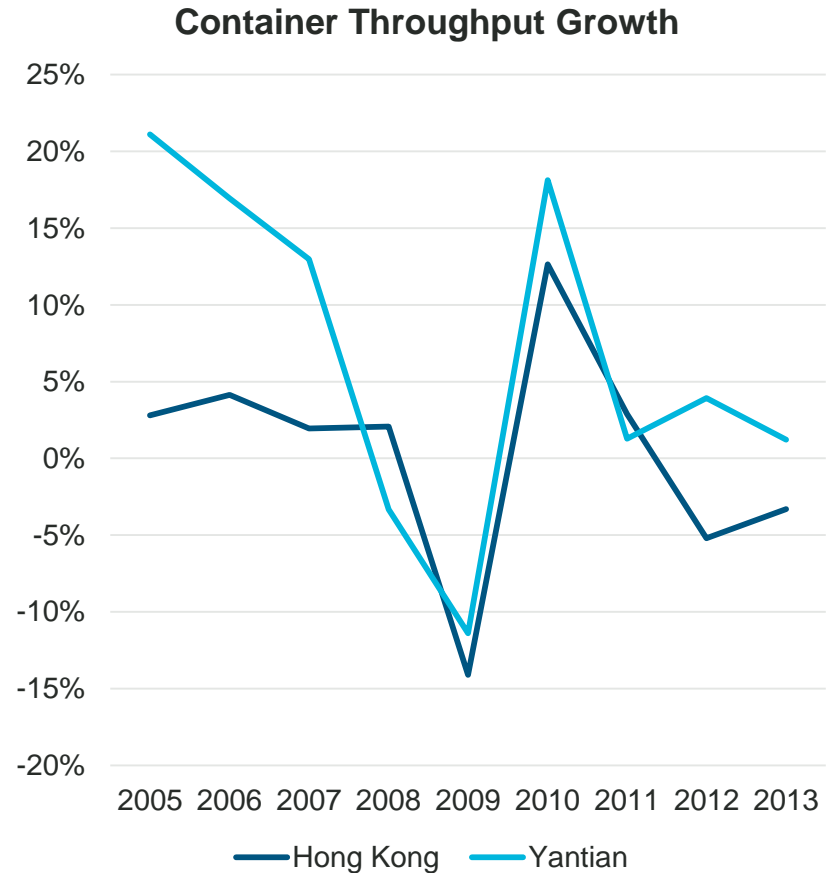
The new container terminal at Nansha is built to modern standards and has space for further expansion; throughput growth is very high, but from a small base.





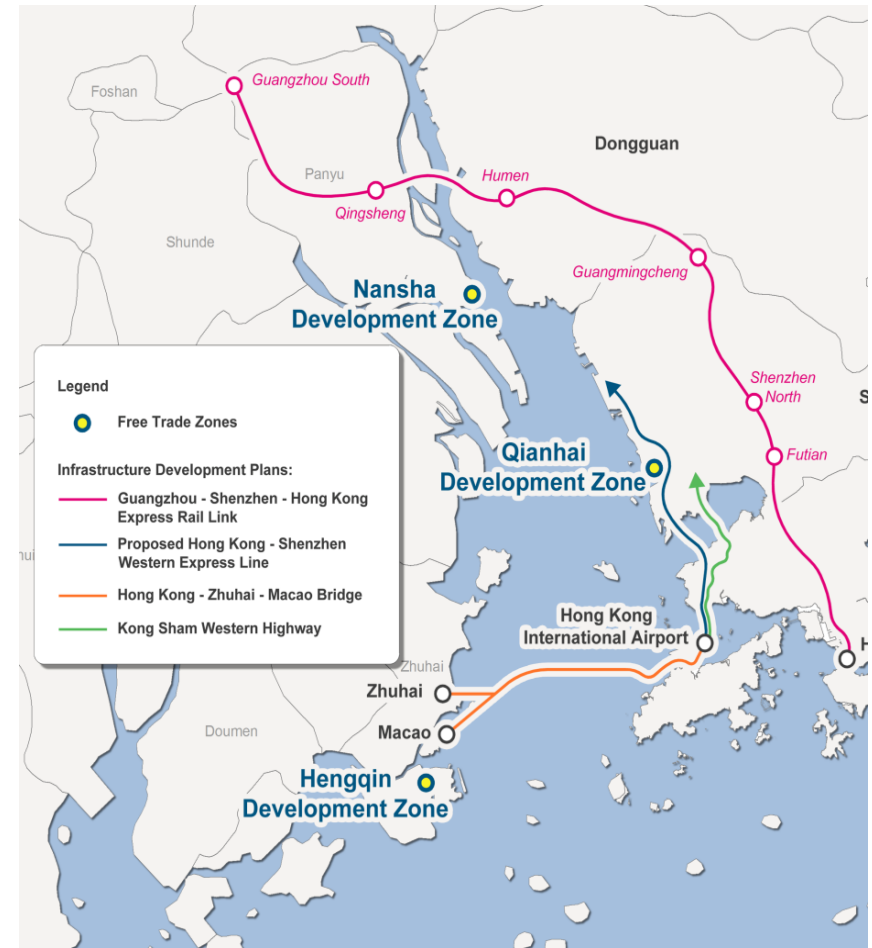
# Market Trends Faced by PRD Ports: Hong Kong

- Declining market share of South China Cargo, largely due to greater THC and trucking costs than competing South China ports
- Increasing amount of low margin international transhipments
- Manpower shortage and labour unrest (40 day strike in 2013)
- Bureaucracy hinders implementing port development projects
- Expected low throughput growth in the future



# Market Trends Faced by PRD Ports: Shenzhen and Guangzhou

- Increasing operating costs and labour shortage create high investment barriers
- Industrial reform pushes manufacturers to upgrade or relocate their factories
- Continued demand of easing Customs requirement and improve efficiencies
- Increasing integrations with inland logistics through road and barging network



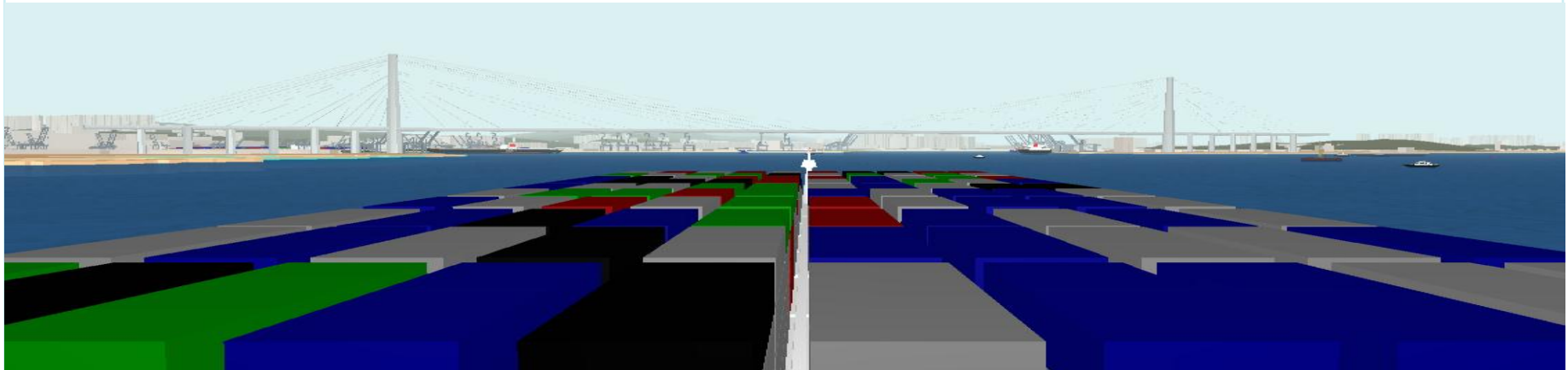
# Changes adapted by PRD Ports

## HKP can adapt by addressing:

- Increasing demand for barge berths
- Expedite development of proposed logistics facilities e.g. in New Territories
- Adjust offerings to target international transshipments

## SZP & GZP can adapt by addressing:

- Operational efficiencies with competitive pricing
- Enhance the development of Qianhai FTZ to upgrade logistics services
- Avoidance of over-capacity of infrastructure



# In Particular, How HKP is Responding to Market Changes

Adapting to trends and making better use of existing infrastructure by:

Upgrading some older barge berths into modern container facilities for river and ocean vessels, integrated with other terminals.

Making better use of land around terminals.

Developing other sites as dual ocean and river facilities.

Providing additional barge berths at KTCT.

Establishing a Development and Promotion Team.

Expediting development of other logistics facilities.

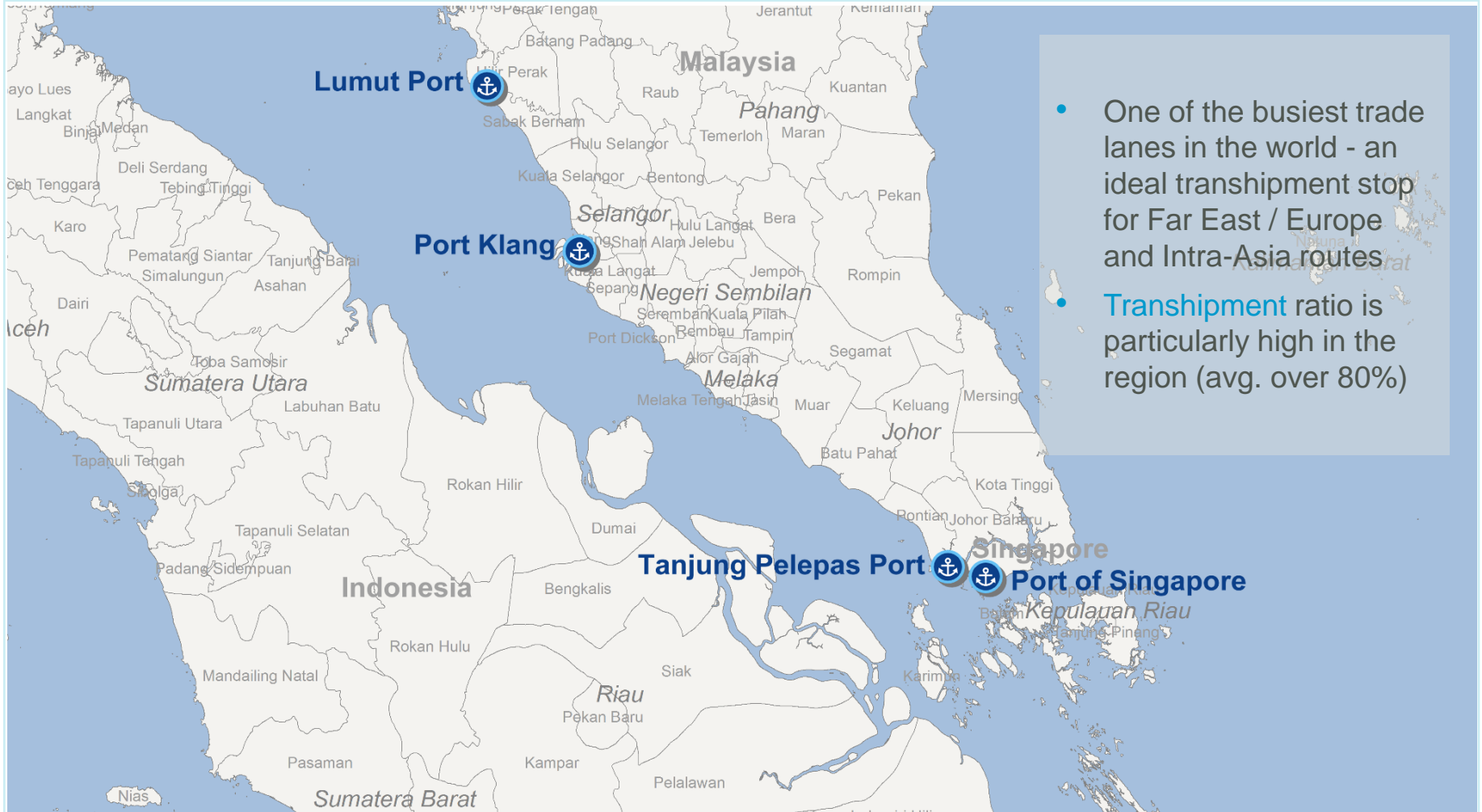
**Creates additional capacity & efficient operation, and;  
Accommodates growth in transshipment**

**Facilitates growing river to ocean transshipment**

**To raise profile with liners and shippers**

**To develop port & logistics / distribution synergy**

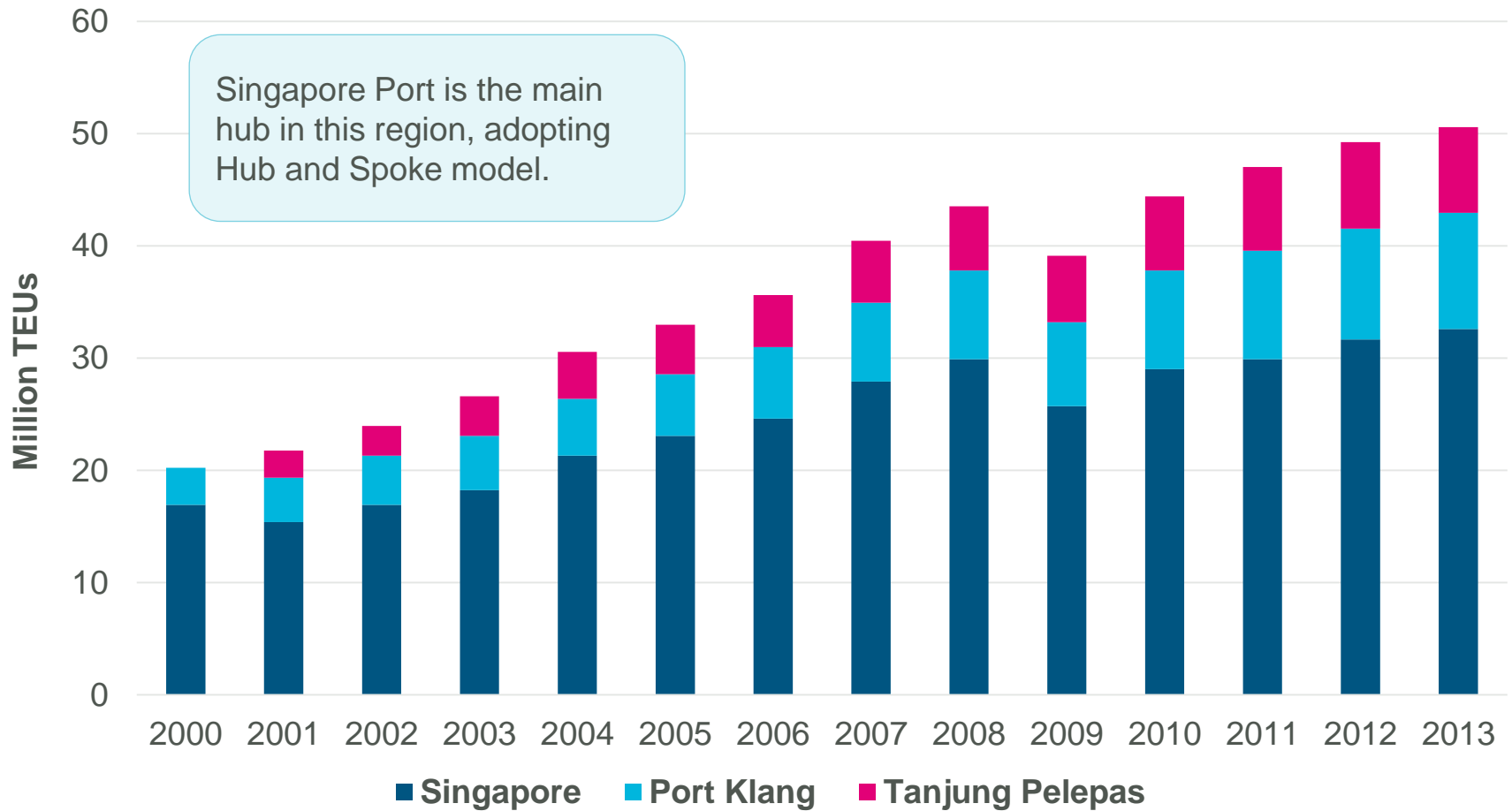
# Major Container Ports in the Strait of Malacca



- One of the busiest trade lanes in the world - an ideal transshipment stop for Far East / Europe and Intra-Asia routes
- **Transshipment** ratio is particularly high in the region (avg. over 80%)

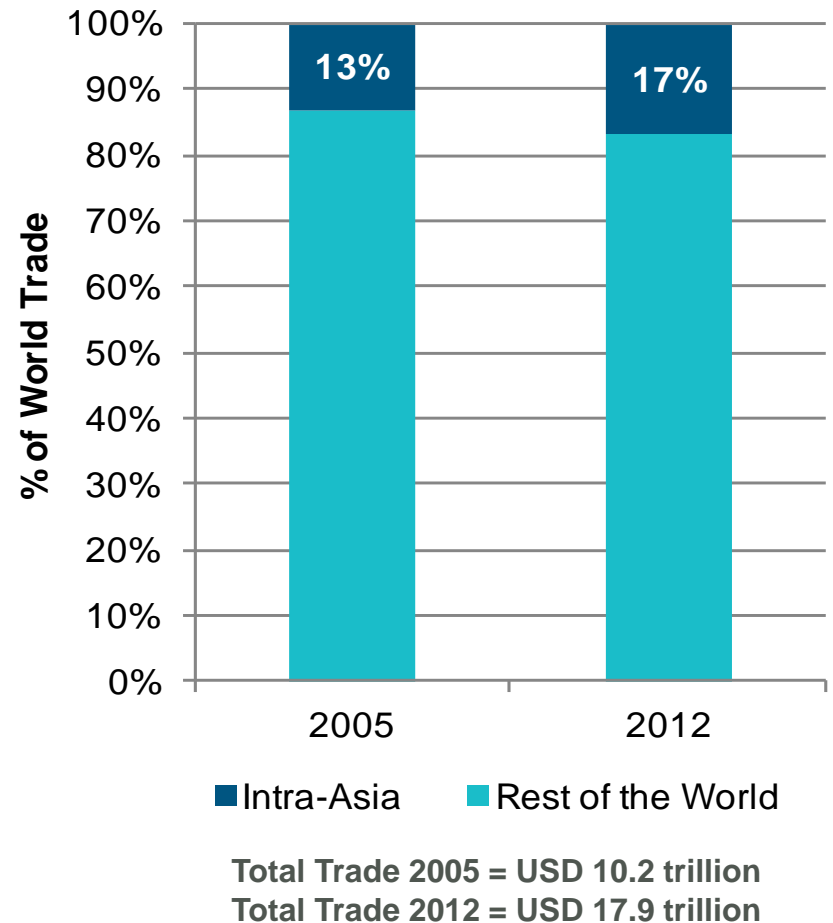
# Historical Throughput

## Ports in the Strait of Malacca



# Market Trends Faced by Ports Strait of Malacca

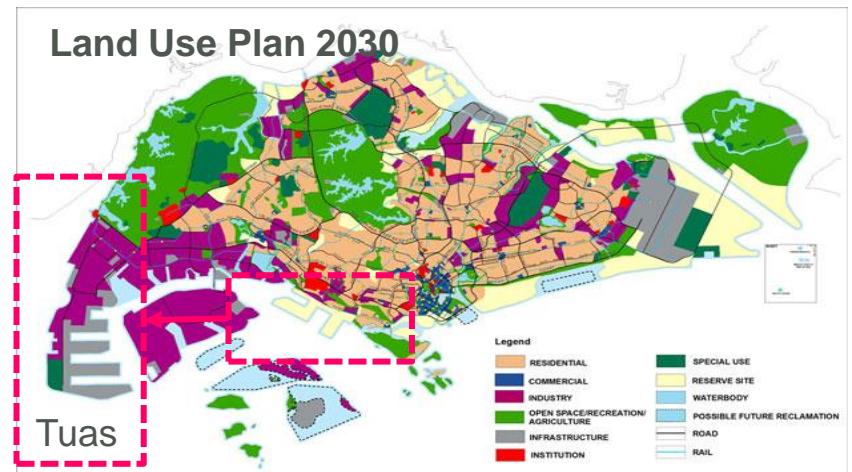
- Intra-Asia trade has grown rapidly and expected to surpass Europe as the largest regional trading area by 2016
- Increasing foreign investors and infrastructure development projects
- Intense competition among ports to become a transshipment hub, leading to intensive price competition for transshipment cargo
- Inland logistics costs are high due to inadequate infrastructure, increasing overall logistics cost of moving cargo, esp. road haulage costs



# Changes Adapted by Ports in the Strait of Malacca

## Port of Singapore

- To accommodate increasing transshipment cargo, PSA started to relocate all its container operations to Tuas
- Full operation shall be resumed before 2027
- Extensive infrastructure development and upgrade plans, aiming to improve efficiencies and keep the port status as the regional hub in Southeast Asia





# Changes Adapted by Ports in the Strait of Malacca

## Malaysian Ports

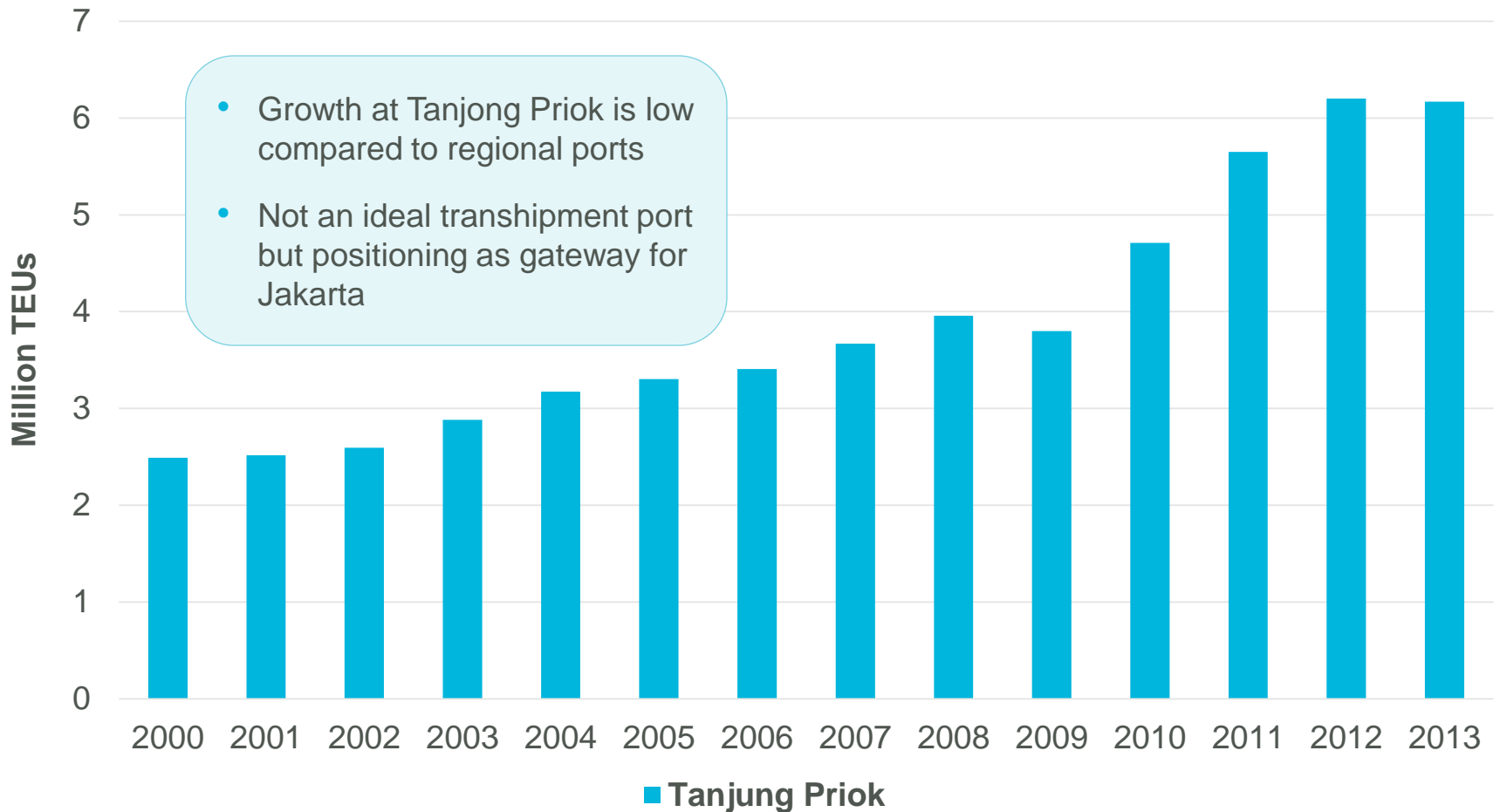
- Capitalise on regional growth by positioning to be a hub for intra-Asian trade
- Diversify cargo mix by growing hinterland cargo base instead of solely relying on international transshipments
- Improve inland connectivity network to reduce overall logistics cost and increase competitiveness
- Develop free trade zones and high tech parks to increase value of locally produced goods



# Major Container Ports in Indonesia



# Historical Throughput Tanjung Priok Port



# Market Trends Faced by Ports Indonesia Ports

- Increasing investment opportunities for manufacturers as they seek alternatives with low labour and land cost
- Robust economic growth among ASEAN countries (6.2% compared to ASEAN avg. of 5.7% in 2012)
- Severely inadequate logistics network, incl. road / barge / rail is increasing cost of moving cargo
- Undergoing economic reform for nation's industrialisation, leading to containerisation of cargo
- Lack of expertise



# Changes Adapted by Indonesian Ports

- Actively attract foreign investors to boost industrial development
- National strategy for accelerating infrastructure development across Indonesian islands, including:
  - Improvement and expansion of Tj. Priok – Kalibaru Terminal
  - Establishment of new gateway ports in Kalimantan, Sumatra and Papua
- Aim to build an extensive inland and barging network to facilitate cargo consolidation and distribution



## **Related BMT Project Experience**

# Strategic Development Plan for 2030 Hong Kong Port

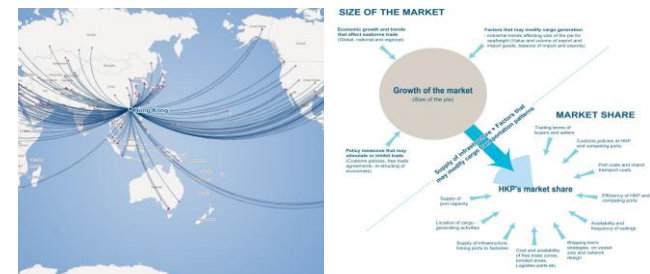
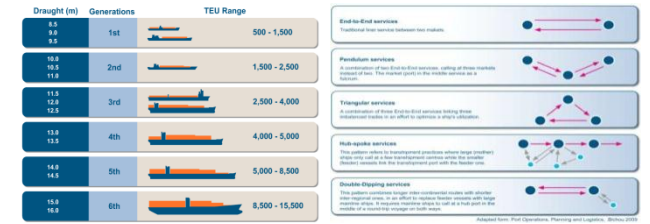
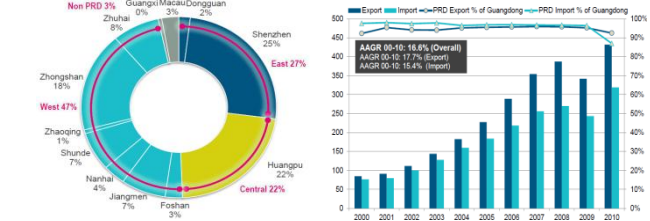
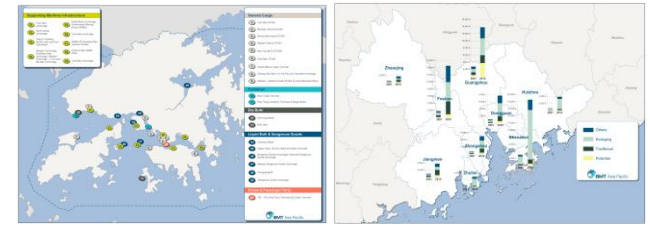
Client: Hong Kong SAR Government

## Background:

- A long term BMT client sought a masterplan to maintain Hong Kong's position as an international maritime center for the next 20 years.
- Industry trends for cargo output in South China and the growing importance of global transshipment throughputs were identified.
- BMT performed regional competitors analysis and long term throughput forecast.
- Recommendations to overcome barriers to growth and operational challenges were provided.

## What it delivered:

- Forecast throughput, bulk cargo volume (incl. liquid bulk);
- Analyse hinterland market and competition landscape, assess port's capabilities, forecast market shares;
- Devise transport and development strategy;
- Assess economic impact, financial feasibility and etc.



# Commercial Feasibility Study for a Deep Water Port Bagan Datoh, Malaysia

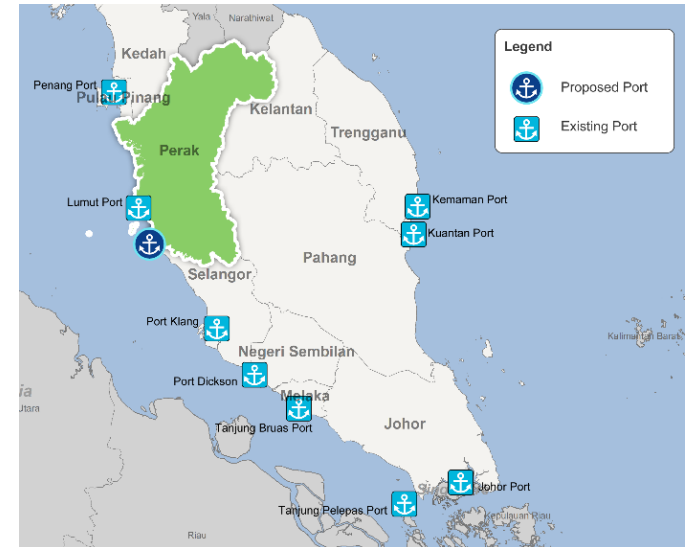
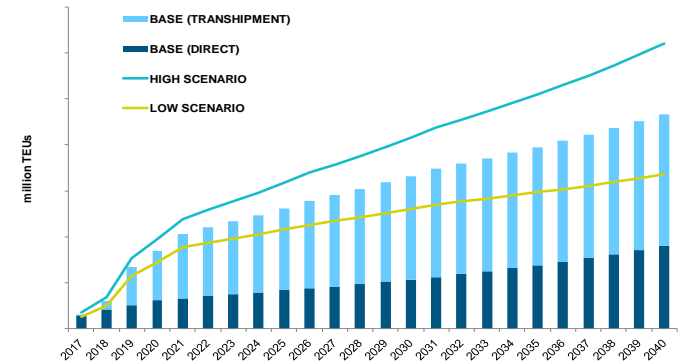
**Client: PKNP**

## Background:

BMT has been appointed to conduct a commercial feasibility study for the client's plans of a new deep water port in Bagan Datoh. The port aims to capitalise on growing industrial developments by acting as a gateway and servicing international transshipment cargo in the Malacca Strait.

## What it delivered:

- Analysis of regional cargo market and its growth drivers;
- Potential partnership identification;
- Analysis of infrastructure and inland connectivity;
- Port success factors and regional competition landscape;
- Optimisation of ICT / depot establishments;
- Port cargo forecast, pricing strategy and financial evaluation.





# Detailed Feasibility & Outline Design of a Deep Water Port Kijing, Indonesia

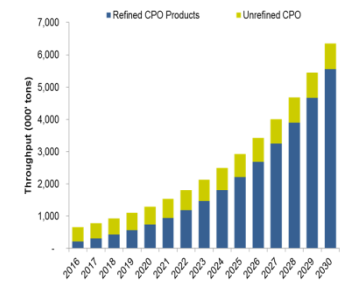
**Client: Indonesia Port Corporation**

## Background:

- BMT conducted a detailed feasibility study for the Deep Sea Port development in West Kalimantan.
- Barging network strategy, viability of river routes for inland connectivity and methods to reduce overall cost of cargo movements were provided.
- Terminal planning to target specific commodities vital to intra-Asia trade.

## What it delivered:

- Port Connectivity analysis
- Comprehensive analysis of issues related to oceanography,
- Develop layout for the Kijing deep-water port,
- Marine engineering in support of the port's outline design,
- Financial analysis, and recommend partnership arrangements for developing and operating the port.

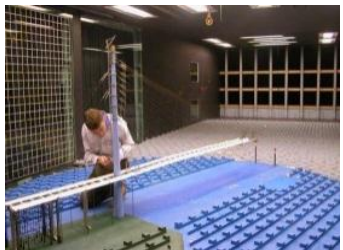
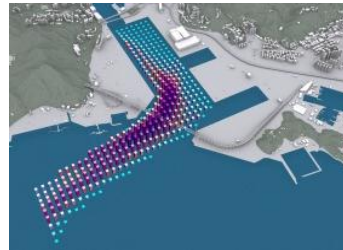
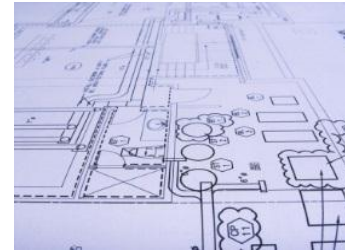
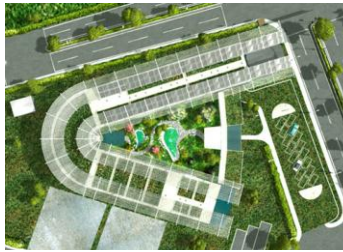


## Appendix

- About BMT
- Business Scope - Asia Pacific
- Ports & Terminals Services – Asia Pacific
- What BMT Clients Say

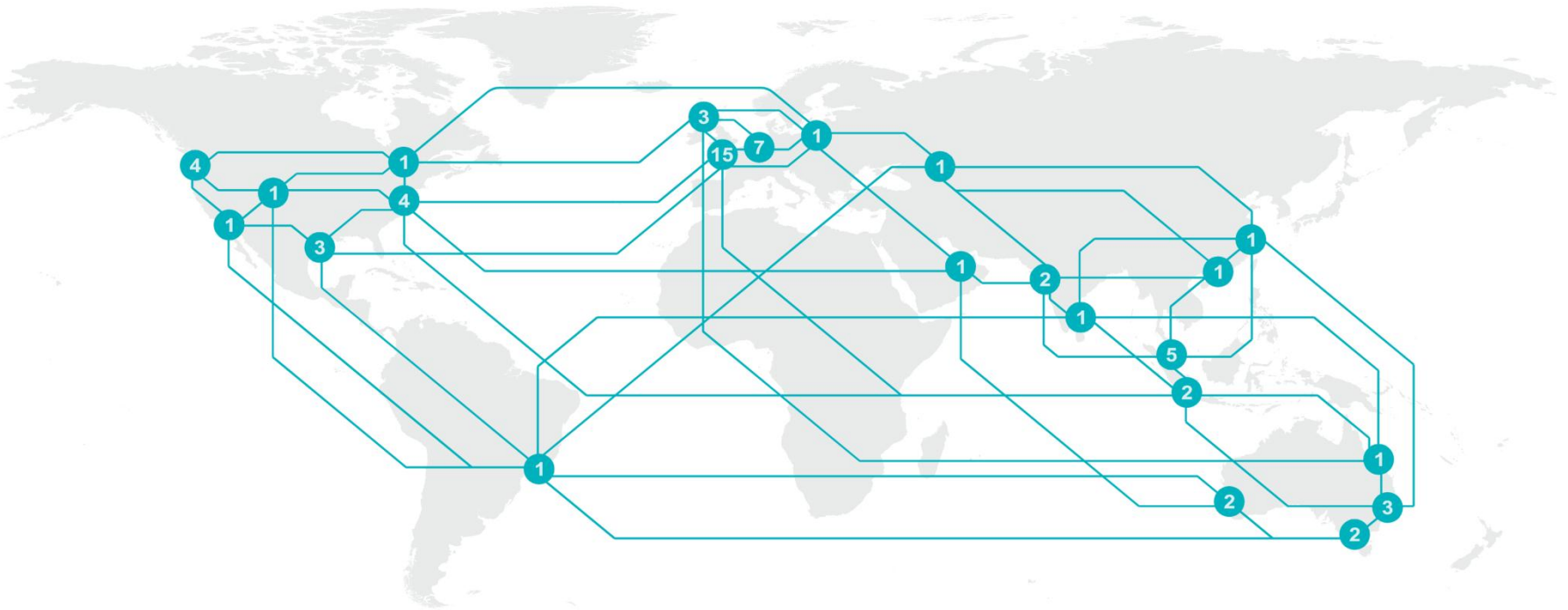
# About BMT

## An Independent Consulting and Advisory Firm



# Global Presence

Over 1,400 experts worldwide



**Americas**  
15 offices  
3 countries

**Europe, Middle East & Africa**  
15 offices  
3 countries

**Asia Pacific & Australasia**  
15 offices  
5 countries

# Business Scope – Asia Pacific

BMT helps clients make critical decisions at every stage of development. An employee-owned entity, our advice is impartial and independent.

A multidisciplinary group, our subject matter specialists combine deep domain knowledge and regional experience.

Using leading-edge technology, BMT delivers effective, reliable and real-world solutions and products to our clients.



**Energy**



**Environment**



**Transport & Infrastructure**

# Our Services, Our Promise

# EXCELLENCE

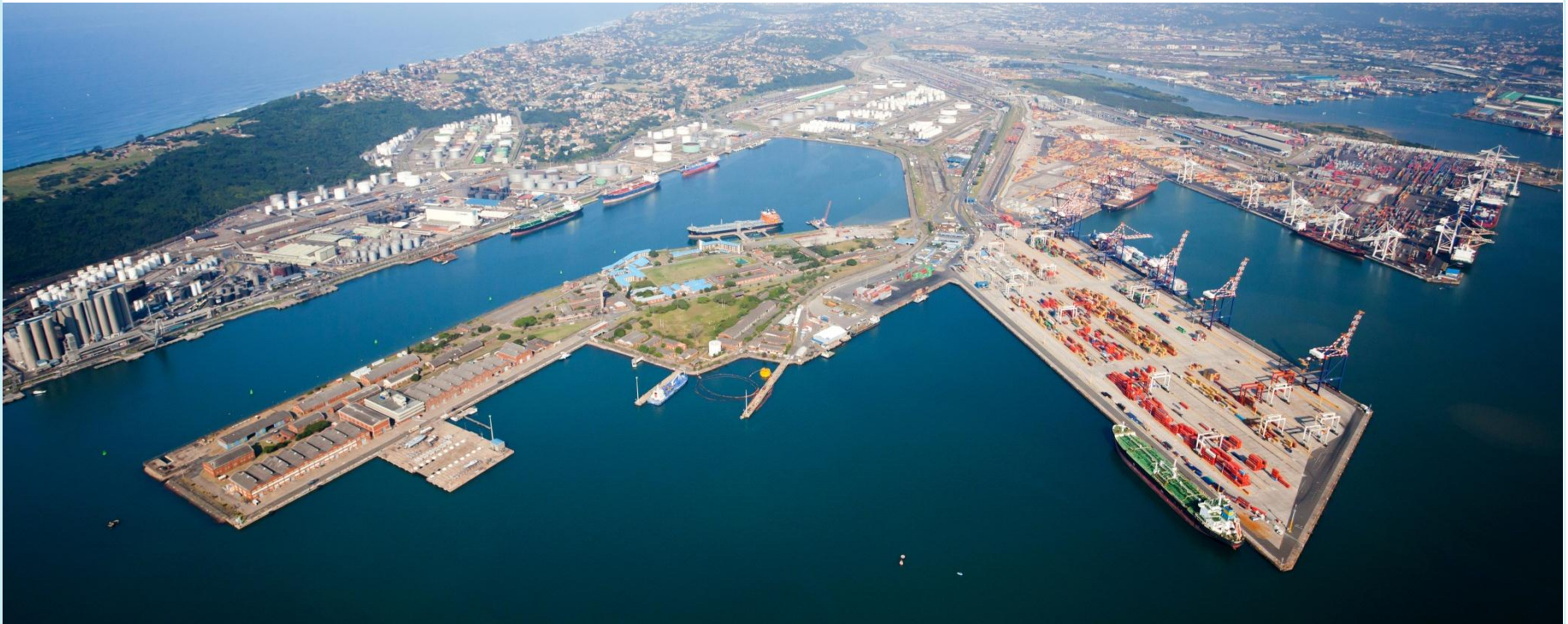
- Coastal Process Modelling
- Economic and Market Studies
- Environmental Management, Marine & Coastal
- Environmental Management, Urban Environment
- Expert Witness for Arbitrations - Technical Support
- Feasibility and Due Diligence
- Floodplain Management
- HAZOP Studies
- LNG Solutions
- Marine Facilities and Port Masterplanning
- Marine Operations Optimisation
- Marine Traffic Impact Assessment
- Marine Transport Planning
- Metocean Forecasts and Modelling
- Mining Machine Design and Audit
- Mining Test and Measurement
- Naval Architecture and Specialist Vessel Design
- Navigation Simulation and Assessment
- Offshore Instrumentation
- Oil Spill Assessment
- Ports, Terminals and Floating Platforms Design and Engineering
- Process System Optimisation
- Project and Programme Management
- Quantitative Risk Assessment
- Rail Safety Assurance
- Rail System Assurance and EMC
- Safety Engineering Support & Assessment
- Shipyard Support Services
- Project Risk (SRM/CDM) Services
- Sustainable Building Design
- Urban Water Cycle Management
- Wind Tunnel Testing

*Showing a portion of APAC services only*

# Ports & Terminals

## BMT Asia Pacific Services

- Market, Industry and Cluster Analysis
- Regulatory Economics
- Investment Appraisal & Facilitation
- Socio-economic Assessment
- Ports & Terminal Infrastructure Design & Engineering
- Environmental Services
- Marine Access
- Risk Assessment



## What Our Clients Say

*“For us they have expertise and knowledge in all the areas of design and evaluation.”*

*“What we like most about BMT is their understanding of what we look for, their high flexibility and also their high quality of presented results.”*

*“BMT [is] the choice for first class consulting work in the areas of transport & logistics. Their reports added immense value to us with immediate effect.”*

*“BMT bring us an independent view and make us think about our business like no-one has done before.”*

*“As always, excellent results.”*



# Thank you

Contact:

Simon Su, Director and Chief Economist

[sis@bmtasia.com.hk](mailto:sis@bmtasia.com.hk)

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