CONTAINER PORT COMPETITION: A SOUTHEAST ASIA CASE STUDY

Syafi'i[*], Katsuhiko KURODA[**]

[*] *Graduate School of Science and Technology, Kobe University, Japan*
[**] *Department of Civil Engineering, Kobe University, Japan*

ABSTRACT

In recent year, shipping companies have been taking the initiative of vertical and horizontal integration in the international maritime logistics chain. As consequence, the market power of shipping companies has increases over the other service suppliers. This development has compelled port authorities to re-evaluate their strategy in response to the change of market structure. The purpose of this paper is to review the current container port competition in Southeast Asia and to analyze the response of port authorities to the changing market environment in which they operate. In Southeast Asia, the Port of Singapore will remain the leading port in the region in view of its long existence and reputation for excellent service. However, with the establishment of other regional hubs, its dominance will continue to decline. Dedicated terminal, financial stakes, changing technology and information system, and quality supporting services are important strategies for port authorities to increase their competitiveness.

Keywords: Container port competition, port authority strategy, Southeast Asia

1. INTRODUCTION

The movement of Maersk Sealand's transshipment hub operations from Singapore to Malaysia on August 2000 and the relocation of Evergreen which dropping Singapore from its round the world westbound service and moving all South-east Asian cargo to Thailand's Laem Chabang terminal can be viewed in the context of increasing globalization, and the very nature of the container shipping industry. These movements have indicated that container ports competition in Southeast Asia region have become more severe. Currently, port competition is certainly one of the most challenging phenomena in the on-going process of globalization, and ports indeed can have catalytic impact, but then only if they become cost-effective logistic centers in a world driven by global economics (Winkelmans, 2003).

Just like any other supplier, the need for global sourcing has meant that liner shipping are increasingly being asked to supply their services on a truly world-wide basis. Shippers, as they too have globalized, have become less particular as to which port they prefer. Critical aspects of the door-door contract are more important, and these factors principally include price, transit time and service quality levels. Thus, the global liner shipping company has to be mobile and responsive to customer needs. As global customers continually push on liner shipping to lower their costs, liner shipping are forced to seek out the lowest cost options for themselves. Shipping customers select liner shipping based primarily on price and, given negligible switching costs to another line, they are always ready to switch to obtain lower rates.

In response to the globalized market and severe competition among liner shipping, shipping companies have been taking the initiative of vertical and horizontal integration in the international maritime logistics chain. As consequence, the market power of shipping companies has increases over the other service suppliers. At the same time, container terminal management/terminal operators have been able to enlarge their global operation by managing terminal in different ports. These developments have compelled port authorities to re-evaluate their strategy in order to survive in the change of market structure.

Some authors discussed the port authority strategies in the change of market structure. Song (2002, 2003) proposed the concept port co-opetition, which means the combination of competition and cooperation for the port industry and explains a case of co-opetition between the container port in Hong Kong and South China. Winklemans, et al (2001) suggest that port authority can play an important role in the creation of core competencies and economics of scope in areas: value-added logistics and logistics polarization, the development of information systems, participating in planning and implementation of new transport services, and port networking.

The purpose of this paper is to review the current container port competition in Southeast Asia and to analyze the response of port authorities to the changing market environment in which they operate. Some major ports which have cargo throughput more than 2 million TEU are discussed in the study, namely, Port of Tanjung Pelepas and Port Klang (Malaysia), Singapore, Tanjung Priok (Indonesia), Laem Chabang (Thailand), and Manila (Philippines).

2. DRIVING FORCE FOR PORT COMPETITON

2.1 Shipping alliances

In recent years, a number of structural changes have occurred in the transport market as firms have attempted to be price competitive and to improve and expand service offerings. This development is a result of striving towards cost-savings through expansion and the emergence of the concepts of global and total logistics. As a result, the principal player (e.g. shipping companies) evolved into large logistical organizations through a mixture of autonomous growth, alliances, mergers, etc. The globalization of container liners has resulted in the greater market power of the alliances and consortia (Heaver, 2000) as international shipping lines have more choices in calling at ports. Several shipping companies are collectively able to negotiate with port operators for favourable service charges and conditions. Alliances are starting to opt for a further concentration on certain terminals, with important consequences. Alliances and other co-operation agreements are now controlling significant goods flows on the major routes. This creates demand for ever-greater terminal capacity.

2.2 Increases in Vessel Size

Since 1995, the container shipping industry has entered a new phase where the emphasis has once again shifted technological advancement and associated importance of reaping economics of scale in ship size (Cullinane et al, 1999). Currently 4,000-6,000 TEU vessels already dominated major Asian deep-sea trades as shown. In 2002, ships in excess of 6,500 TEU have come into operation on Asian routes and some carriers are considering constructing and deploying even larger ships. The most significant point is that all of these new large vessels will be deployed to and from Asia. This will place enormous demands on Asian ports.

The implication of such increase in ship size will be an even greater focus on the hub and spoke system, in which the biggest ships will call at only a limited number of very efficient ports on the main routes, with other ports being linked by extended feeder networks. Moreover, the larger size of vessels and their intermodality also influence the competition between ports. Due to the depth limits of container ports, fewer ports are able to directly serve the giant transoceanic vessels.

2.3 Emergency of new ports

Ports need to consider the status of competition from other ports and the logistics systems through them. Initially, new competitors may not pose much of a threat, but some gain a critical mass of traffic and establish effective hinterland connections. Monitoring the effectiveness of new ports requires careful attention to the success of their network strategies, even at the level of agencies and forwarding firms (Heaver, et al 2001).

3. SOUTHEAST ASIA CONTAINERIZED TRADE DEVELOPMENT

Southeast Asia has grown to become one of the busiest regions for container shipping. According to WTO, Southeast Asian countries merchandise exports reached $427 billion in 2000, triple the total of 1990. Over the same period, imports rose more slowly but still more than doubled, from $163 billion to $367 billion (Llyod's Shipping Economist, August 2002). The number of container handled at Southeast Asia countries has tended to rise as shown in Figure 1. In comparison with the world container traffic, the Southeast Asia overseas shipping traffic accounted for 17.1% of the world container traffic.

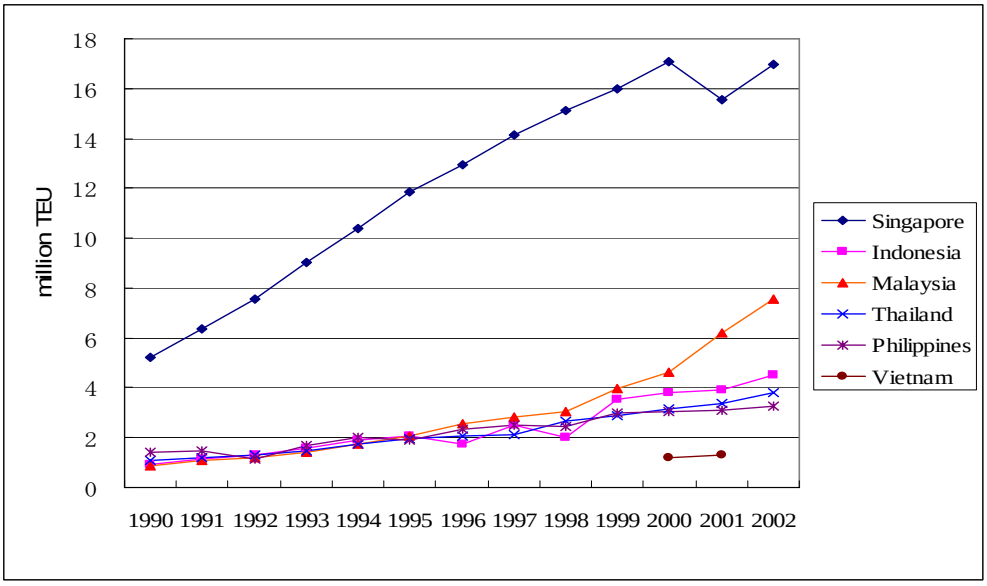

Figure 1: Growth of container trade in Sotheast Asian Countries, 1990-2002
Source: Containerisation International Yearbook, various years

In line with the tendency of using larger vessels, transshipment activity in the region is expected to grow. Drewry (1998) estimated that no less than 46.3% of containers handled at the region's port were actually in transshipment, the highest share of any region in the world. This feature is to some extent inevitable in a region where several countries have population

centres spread across distant islands. Many parts of the Philippines, Indonesia and Malaysia are effectively limited to small vessels and containers are inevitably transshipped at the countries' larger ports or at one pf the major regional hubs. Yet many high-volume ports are also bypassed by deepsea container ships, and this is also a key factor in the huge volume of transshipment in the region. Those few ports capable of handling the large vessels deployed on the 'east-west' trades and of redistributing these volumes rapidly and efficiently are engaged in a fierce battle for business.

Containerization continues to strongly impact on the development of ports in the region as new container vessels of higher TEU capacities are introduced to main and feeder service routes. Until the mid-1990s Singapore enjoyed solo hub status in the regional port system. In 2002, six ports handling over 2 million TEU (see Table 1), all of which are intensely battling for regional transshipment cargo. The Port of Singapore will remain the leading port in the region in view of its long existence and reputation for excellent service. However, with the establishment of other regional hubs, its dominance will continue to decline. As shown in Table 1, Singapore's regional market dropped from 17.04 million TEU in 2000 to 16.80 million TEU in 2002.

Table 1: Cargo throughput by selected major port (TEU)
Source: Containerisation International Yearbook, various years

Port Name	1990	1995	2000	2001	2002
Singapore	5,223,500	11,845,600	17,040,000	15,520,000	16,800,000
Port Klang	496,526	1,133,811	3,206,753	3,759,512	4,533,212
Tanjung Pelepas	-	-	418,218	2,050,000	2,660,000
Tanjung Priok	643,963	1,300,126	2,476,152	2,222,496	2,680,000
Laem Chabang	-	529,073	2,312,439	2,312,438	2,656,651
Manila	1,038,905	1,668,031	2,291,704	2,296,151	2,462,169

4. THE BATTLE FOR HUB PORT: THE CASE OF SOUTHEAST ASIA

Exploiting its ideal geographical location and a wealth of services and skill accumulated by the Port of Singapore Authority (PSA), Singapore has long been the world's major container hub over the years. As shown in Table 2, most of Transpacific and Asia-Europe services call Singapore port as part of their route. For many carriers, there was no need to call at any other ports in the region – the large ships on their Europe/Far East services could cover it all with just one quick call at Singapore. The development of multi-string networks on the main Asian east-west routes should have opened the door for other ports but, with the notable exception of Port Klang, the reliance on rely connections has remained.

Table 2: Comparison of direct port calls on Transpacific and Asia-Europe services
Source: compiled from International Transportation Handbook (In Japanese), various year

	Calls					Calls			
Port	1986	1991	1996	2002	Port	1986	1991	1996	2002
Singapore					***Indonesia***				
Singapore	14	27	39	34	Tanjung Priok	0	1	0	2
Malaysia					***Thailand***				
Port Klang	1	2	10	21	Laem Chabang	0	0	3	2
Tanjung Pelepas	0	0	0	9	***Philippines***	0	0	0	0

The challenge to Singapore and the PSA's dominant hub role has coming principally from Malaysia. Port Klang was the initial beneficiary of a government drive to reduce the amount of national cargo transshipped at Singapore, and its throughput doubled in the three years up to last year, with relay cargo increasing from about 24% to over 40% of the total in same period. The development of new facilities within sight of Singapore in Malaysia's southern state of Johor was also designed to reduce the island's supremacy, but the first attempt – at Pasir Gudang –failed to make much of an impact. This may have contributed to Singapore's complacency as the new port of Tanjung Pelepas (PTP) took shape, an attitude that has cost it dear. Currently, the Port of Tanjung Pelepas at least in the short term, has positioned itself well within the network to capture cargo provided by the growing ASEAN market. PTP is expected to have the largest container handling facilities in the region outside Singapore. The ability to offer tariff rates 30% less than Port of Singapore and its success in persuading Mearsk Sealand and Evergreen, to shift its transshipment hub from Singapore to PTP, indicates its potential of becoming a major regional transshipment hub.

PTP's capture of some 80% of Maersk Sealand's regional business lost Singapore as estimated 1.8 m TEU per annum, which is reflected in the starling changes in port throughput figures for 2000-2001. The Carriers' purchase of a 30% stake in PTP has underlined the fact that this is not a temporary diversion, and Singapore has had to rethink its strategy. Evergreen's recent decision to move most group services from Singapore to PTP – taking a probable 1 million TEU per annum with it – has shocked Singapore into action. The PSA has been stung even more painfully, as it has also had to contend with the move of Zim to the rejuvenated Jurong terminal in Singapore. Fortunately both Maersk Sealand and the Evergreen groups control much of their relay operations, which has lessened the pull of PTP for common feeder operators. The great fear of Singapore would be to lose a major carrier that depends on third party relay operators, or even one of the larger regional specialist such as Regional Container Lines (RCL) and Samudera, which are both likely to contribute over 1 m TEU to Singapore's handling figures this year.

Besides Malaysia, Tanjung priok port is undertaking serious measures to make competitive in order to maintain steady growth in cargo throughput as well as capture larger local and regional market shares. More than 80% of international cargo of Indonesia is transported through Singapore feeder service and transshipment cost in Singapore bring about the high cost of this transportation. Currently, Indonesian government is still constructing the new port near Tanjung Priok, namely, Bojonegara port. The port complex of Tanjung Priok/Bojonegara has the potential of becoming an international container "hub port," that would attract direct calls of transoceanic liner shipping services. Such a development could result in a significant reduction in Indonesia's shipping costs for exports and imports. A March 1999 study financed by the Japanese International Cooperation Agency (JICA, 1999) estimates that realization of the potentials of Tanjung Priok/Bojonegara and accompanying development of Tanjung Perak could lower feeder shipping costs for Indonesia by nearly 40 percent, in comparison with continued reliance on Singapore for all transoceanic shipping service connections. This same development scenario is estimated to lower total shipping costs for trade between Indonesia and the west coast of the America by around 14 percent.

5. PORT AUTHORITY RESPONSES

In response to severe competition among ports, port authorities are compelled to adapt their strategies in light of the transformations in the structure and practices of other participants in

international logistics. The first is the strategy of authorities with respect to dedicated terminal. The second is the strategy of ports with regard to financial stakes. The third is the strategy related to changing technology and information systems. The fourth strategy is quality supporting Services. The fifth strategy is infrastructure and institutional support for a total logistics centre

5.1 Dedicated Terminal

Currently, shipping line not only formulates demands with regard to port charges but they are more widely interested in the use of dedicated terminals. As the benefits of integration through corporate responsibility for planning, investment and operations management increase, so the interest of lines in dedicated terminals has increased. Shipping companies see the terminals as part of their international networks of transport and logistics services. For port authorities, dedicated terminals are a means to facilitate the development of integrated services and to bind shipping companies to terminals. They provide opportunities for port authorities to push for more investment and longer-term leases than might otherwise be possible. The power to dedicate terminals is a useful strategy for a port authority, certainly if there is competition between different terminal operators (Heaver, et al, 2001).

Recent developments in Southeast Asia countries are quite telling as shown in Table 3. As example is Port of Tanjung Pelepas (PTP) in Johor, Malaysia, Maersk Sealand purchased of a 30% stake in PTP. On August 18, 2000, Maersk Sealand, announced that they were going to move their transshipment operations from Singapore to PTP. All Maersk Sealand's mainline services that used to call at Singapore, except the West Australia and New Zealand services, will in the future call at PTP. This makes the PTP operation one of the largest in Maersk Sealand's global network. The Maersk Sealand move was completed in 2001, and was the biggest single move in the history of the port industry in Southeast Asia. It was estimated that the move would save it between $5.7 million per year and $30 million per year. Evergreen also dropped Singapore from its round the world westbound service and moving all South-east Asian cargo to Thailand's Laem Chabang terminal. The movement of Maersk Sealand and Evergreen has shown that ports have become completely dependent on the shipping companies' decisions, and planning with this in mind is essential for the challenges facing port managers today.

Table 3: Dedicated terminal agreement between port authorities and shipping company
Source: Port authorities

Port Name/ Terminal Name	Players Name	Share
a. Tanjung Pelepas	Pelabuhan Tanjung Pelepas Sdn Bhd & Maersk Sealand	Maersk Sealand =30%
b. Port Klang/CT3	Port Klang Authorities & MISC	MISC = 15.8 %
c. Laem Chabang/ EGCT terminal B2	Port authority of Thailand & Evergreen	N/A

It seems that the most important factor affecting the decision by Maersk Sealand to relocate, is the relative profitability of ocean carriers and terminal operators. To obtain a better understanding of this issue, we compare the profitability of some carriers and terminal

operators as shown in Table 4 & 5. In spite of the small sample of companies included in tables, there are clear signs that the terminal operators business is much more profitable than the carrier business.

Table 4: Profitability of carriers in 2000
Source: Financial report of Carriers

Carrier	Revenue (US$1000s)	Profit (US$1000s)	Profit Margin (%)
Evergreen Marine Corp	572,369	30,844	5.4
Maersk Sealand	8,936,306	517,932	5.8
NOL	4,672,893	207,574	4.4
NYK Line	4,712,964	259,582	5.5

Table 5: Profitability of container terminal operators
Source: Junior, et al (2003)

Terminal operators	Revenue		profit		profit margin	
	2000	2001	2000	2001	2000	2001
HPH	HK$14.2 billion	HK$15.5 billion	HK$5.3 billion	HK$5.7 billion	38%	36%
PSA	S$2.5 billion	S$2.3 billion	S$1.1 billion	S$1.1 billion	44%	48%
P&O Ports	£ 532 million	N/A	£ 103 million	N/A	19%	N/A
CSXWT	US$ 305 million	US$ 257 million	US$ 71 million	US$ 71 million	23%	27%

The main factors are clearly cost and control, and Singapore has finally taken drastic action to counter the Malaysian threat. The PSA reduced the cost of handling empties by 50% and announced a rebate of 10% on all terminal bills; while government has proposed allowing new port operators to compete with the PSA and Jurong, and lines do develop dedicated terminals.

5.2 Financial Stakes

In April 1999, PT Pelabuhan Indonesia II (port authority of Tanjung Priok Port) invited potential strategic investors for 51 percent ownership of JICT through a competitive bidding process. The successful bidder was Grosbeak (a subsidiary of Hutchison Port Holdings or HPH). Following the purchase of the 51 percent stake of JICT, HPH subsequently secured a 48 percent stake in the adjacent Koja Terminal in September 2000 (Ray, D., et al 2002). A similar situation also occurs in Thailand, when the concession for two container terminals of Laem Chabang port (ESCO terminal B3, and TLT terminal A2) were granted to PSA and HPH respectively as shown in Table 6**.** HPH bought a 30 percent stake in Kelang Multi Terminal, which owns and operates Westport terminal.

With this co-operation, port authorities have recently started moving to get a more active position in the marketplace and the logistics chain. The power to grant concessions for container terminals to container terminal management companies (CTMC) or terminal operators represents a useful tool in this respect, as it could enable port authorities to realize their goal in the short-term. At the same time, though, this evolution poses a threat to the impartiality of post authorities vis-a-vis other players (including competing terminal management companies and shipping companies), which will inevitably have effect for its role as a regulator in a port.

Table 6: Financial stakes agreement between port authorities and terminal operators
Source: Port Authorities

Port Name/ Terminal Name	Players Name	Share
a. Tanjung Priok/ JICT & Koja	PT (persero) Pelabuhan Indonesia II & HPH	HPH at JITC = 51% HPH at Koja = 48%
b. Port Klang/ West port Terminal	Port Klang Authorities & HPH	HPH = 30%
c. Laem Chabang/ ESCO terminal B3	Port authority of Thailand & PSA	N/A
d. Laem Chabang/ TLT terminal A2	Port authority of Thailand & HPH	N/A

5.3 Changing Technology and Information systems

The economics of container ship operations are critically dependent on port productivity. The increasing containerization of world trade brings major technology changes in both shipping and port. Many mainline ports in the Southeast Asia region have achieved productivity gains in recent years, but these may be insufficient for the rapid changes in ship size and technology. The introduction of mega-ships will lead to structural changes, including an extension of the "hubbing" concept. This means that trans-shipment (feeder vessel to mainline vessel) may be concentrated in fewer regional ports. These hub ports will need post-Panamax cranes, deep water, a large amount of back-up land and efficient intermodal connections.

The larger container vessel pose new problem and challenges for ports. To begin with, not many of the Southeast Asia ports have the draft or maneuvering room to accommodate the bigger vessels. Even if there were no such physical limitation, the ports would find themselves unable to handle vessels of such size with existing technology. Furthermore, the size of the sudden upsurge in the container volumes will be nightmarish for many ports. Undoubtedly, all these would necessity another round of capital investment to remain among the top tier of container ports. Additional investments in new container- and cargo-handling technology are likely to be needed. For example, the port of Singapore has recently invested in automated container handling technology for its new Pasir Panjang terminal. Without this new technology it would not have been possible for the port to deliver the speed of handling (330 moves per hour) considered to be compatible with economic operation of the new mega-ships of greater than 6,000 TEU capacity. This was recently demonstrated when the port set a container handling record of 203 moves (333 TEU) per vessel hour at its non-automated Tanjong Pagar Terminal, which was still 127 moves per hour short of the efficiency level needed for economic operation of mega-ships.

Seaports are good platforms for initiative aimed at lowering the bounded rationality of actors. Port authorities have a special role to play to ensure that information systems are in place among all the participants in the logistics systems, to improve overall performance in meeting customer needs. The application of EDI systems in some ports is examples of respective of port authorities.

5.4 Quality Supporting Services

Drewry (1998) reported that shippers tend to choose Singapore because they benefit from faster transit times, less congestion and greater range and frequency of services, even though it is more expensive than Port Klang and others port in the region. Hence, the underlying fact is that Singapore, besides the port infrastructure, is able to provide reliable and quality services to meet shippers' demand. In this sense, despite the fact that the Port of Tanjung Pelepas, Port Klang, Tanjung Priok and Laem Chabang have made tremendous investments in terms of upgrading port capacity and equipment, what is lacking now is quality supporting services.

5.5 Infrastructure and Institutional Support for a Total Logistics Centre

Due to global shifts in international production, especially in distributed offshore production, transportation and logistics become critical in the just-in-time production practiced by most multi-national manufacturers today. Therefore, it appears that the development of an efficient multimodal environment and a total logistics service sector is necessary. Recent trends in transportation and shipping practices point out clearly that shipping lines are not the only major customers of ports. Ports also have to accommodate other users such as shippers and consignees, distribution companies, storage companies, manufacturers and so on. Therefore, the ability to control the transportation chain by offering more value added services to these customers would definitely boost the competitiveness of ports. While most policy emphasis is still on the development of ports and related physical infrastructure, the need for an integrated and efficient transportation system is also paramount.

An improved integrated intermodal system throughout the ASEAN region will enhance the competitiveness of ASEAN ports. The upgrading and development of the trans-ASEAN highway system is needed. The proposed Singapore-Kunming railway will connect the existing railway lines in mainland Southeast Asia to form one system linking ASEAN to southern China. It is therefore important to promote integration of all transport links, and cooperation between ports and other supply chain players is absolutely necessary

6. CONCLUSION

In Southeast Asia, the Port of Singapore will remain the leading port in the region in view of its long existence and reputation for excellent service. However, with the establishment of other regional hubs, its dominance will continue to decline. The port of Singapore is facing growing competition from not only Port of Tanjung Pelepas but also others regional ports such as Port Klang, Laem Chabang port, and port of Tanjung Priok.

Facing keen competition amongst ports and the change of market structure, have compelled port authorities to re-evaluate their strategy. The large shipping companies may now find themselves negotiating with port authority in a range of ports as well as in different port ranges. This may affect the negotiating power of the lines and increase their interest in the operation of dedicated terminals or obtaining a shared interest in a terminal. Such a trend may reduce cost and increase control of shipping companies. Port authorities have recently started moving to acquire a more active position in the marketplace and the logistics chain. The power to grant concessions for container terminals to container terminal management companies (CTMC)/terminal operators represents a useful tool in this respect, as it could

enable port authorities to realize their goal in the short-term. Changing technology and information systems, quality supporting services, and infrastructure and institutional support for a total logistics centre are others important strategies for port authority to increase their competitiveness

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