

**Logistics Clusters and Regional Cooperation for Logistics
Integration in Northeast Asia**

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Logistics Clusters and Regional Cooperation for Logistics Integration in Northeast Asia

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Abstract

Northeast Asia has become an important trade zone and the most dynamic market in the world due to its growth of economy and international trade. Its seaborne cargoes are increasing and this has created business opportunities for the logistics industries such as port, shipping and international logistics in Korea, Japan and China. The purpose of this study is to investigate structural characteristics of logistics industry in Busan and compare it with other areas. This paper tries to examine the behavioral characteristics of the logistics industry in terms of clustering and agglomeration economies. It also addresses a linkage and scale effect of the industry and finds a way of regional cooperation for logistics integration in Pan Yellow Sea region.

1. Introduction

Northeast Asia has become an important trade zone and the most dynamic market in the world due to its growth of economy and international trade. Its seaborne cargoes are increasing and this has created business opportunities for the logistics industries such as port, shipping and international logistics in Korea, Japan and China.

In the supply chain seaports play an important role connecting sea transport and land transport for efficient movements of cargoes and people. Port related businesses are gathering in a busy port and contribute to the economic development of the port city. For example, the city of Busan is the vital gateway to the Korean peninsula and has played an important role as a logistics hub city. Busan has made great strides as a hub port in Northeast Asia with transshipment cargoes accounting for 43 percent of total container throughput in 2005. This situation would give the port a reasonable opportunity for advancing as a logistics hub of Northeast Asia. Due to its advantageous geographical location port logistics businesses are growing and port logistics service providers are offering a wide range of services. Most importantly it has become a core industry to support Busan economy.

The purpose of this study is to investigate structural characteristics of logistics industry in Busan and compare it with other areas. This paper tries to examine the behavioral characteristics of the logistics industry in terms of clustering and agglomeration economies. It also addresses a linkage and scale effect of the industry and finds a way of regional cooperation for logistics integration in Pan Yellow Sea region.

2. A Review of the Logistics Industry in Busan

2.1 Historical development of logistics business in Busan

■ Geographical Location and Port Facilities in Busan

Busan city, located at the Southeastern end of the Korean peninsula, serves the role as a gateway city connecting the Pacific Ocean and the continent of Asia. Located adjacent to one of the three international arterial routes as well, Busan port is equipped with the natural advantage in terms of requirements as a port.

Busan consists of four ports including North port, South port, Gamcheon port and Dadaepo port and six container terminals. Five container terminals are located at North port and Gamcheon container terminal operated by Hanjin Shipping company is located

at Gamcheon port. Nearly 2,840 people are employed at the terminals.¹ Currently, Busan port is equipped with capacity to annually process 91 million tons of cargoes together with 26.8km of quay wall facility enabling simultaneous facilitation of 169 vessels. As the foremost port in Korea, Busan processes 40 percent of total marine export cargoes and 81 percent of container cargoes in Korea as well as 42 percent of marine products domestically produced.²

Container Terminals at the port of Busan



Source: www.busanpa.com

Container Terminal Facilities at Busan port

Classification	Jasungdae (phase 1, 2)	Shinsundae (phase 3)	Gammman (phase 4)	Sin Gammman	U am	Gamcheon
Project Period	'74 ~ '96	'85 ~ '97	'91 ~ '97	'95 ~ 2001	'95 ~ '99	'88 ~ '97
Total Construction Cost (won)	108.4 billion (Feeder: 16.6 billion)	222.6 billion (1 more berth: 37.2 billion)	472.4 billion (KCTA: 329.3 Government: 143.1 billion)	178.1 billion	53.5 billion	97.3 billion
Operating Company	Korea Hutsison Co.	Shinsundae Terminal	Hanjin, Hutsison, Global Korea Express	Busan East Terminal Co.	Uam Terminal Co.	Hanjin Shipping
Number of Employee	759	672	674	332	225	186
Quay Length	1,473.7 m	1,200 m	1,400 m	826 m	500 m	600 m
Water Depth	-15 m	-14 m	-15 m	-15 m	-11 m	-13 m
Handling Capacity	1.20 million TEU	1.20 million TEU	1.20 million TEU	650,000 TEU	350,000 TEU	340,000 TEU
Berthing Capacity	50,000dwt x 4 10,000dwt x 1	50,000dwt x 4	50,000dwt x 4	50,000dwt x 2 5,000dwt x 1	20,000dwt x 1 5,000dwt x 2	50,000dwt x 2
Total Area	647,000m ²	1,039,000m ²	731,000m ²	308,000m ²	184,000m ²	148,000m ²
- CY	462,000m ²	672,000m ²	336,000m ²	153,000m ²	156,000 m ²	105,000 m ²
- Building Floor Space	38,000m ²	28,000m ²	16,000m ²	12,000m ²	5,000 m ²	4,000 m ²
- CFS	20,000m ² (3 buildings)	11,000m ² (1 building)	8,400m ² (1 building)	5,500m ² (1 building)	-	-
Number of Handling Equipment	13 C/C 31 T/C 5 R/S 63 Y/T 13 F/L 249 Chassis	12 C/C 31 T/C 19 R/S 91 Y/T 10 F/L 230 Chassis	14 C/C 37 T/C 9 R/S 80 Y/T 5 F/L 182 Chassis	7 C/C 16 T/C 2 R/S 36 Y/T 6 F/L 69 Chassis	5 C/C 13 T/C 2 R/S 20 Y/T 2 F/L 50 Chassis	4 C/C 10 T/C 1 R/S 19 Y/T 38 Chassis

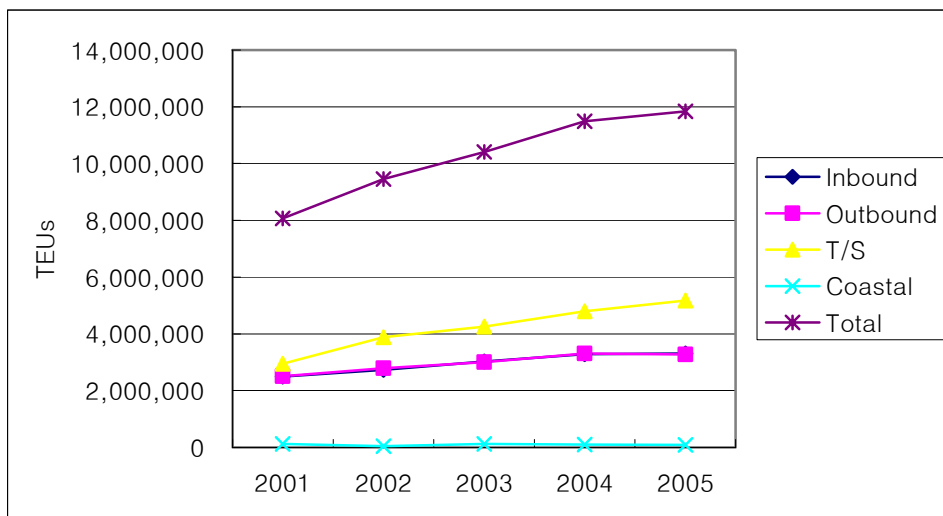
Source: Ryoo, D. K. (2007)

■ Growth of Busan Port

The Port of Busan has rapidly developed since first opening in 1876. In 1978, Jaseongdae terminal, the first Korean container terminal was constructed, and then has quickly grown as one of the world's leading container ports with an annual growth rate of over 10 percent. In 1975, Busan did not rank among the top 30 ports in container traffic. In 1985, the port had moved up to number 12 in total container traffic, driven by industrialisation within Korea and the growth of its consumer base. In 1990, it ranked as the sixth largest container port in the world because of its proximity to major shipping routes and rapid growth of international trades.³

Through the 1990s, Busan maintained its strong position, ranking fifth in the world in 1995 and was able to grow in this container industry because of its central location with respect to markets in North China, Japan and eastern Russia. With the growth in transshipment container cargoes and international trade, the port ranked as the third container port in the world in 2000, handling 7.50 million TEUs. In 2003 total container throughput handled at the Port of Busan was 10.4 million TEUs, consisting of 3 million TEUs for inbound, 3 million TEUs for outbound, 4.2 million TEUs for transshipment and 121,730 TEUs for coastal cargoes. In 2005 Busan port handled 11.8 million TEUs, consisting of 6.5 million TEUs for both inbound and outbound cargoes, 5.1 million TEUs for transshipment and 85,115 TEUs for coastal cargoes. In 2006 container throughput handled at Busan port was 12 million TEUs, 1.6 percent increase over the previous year.

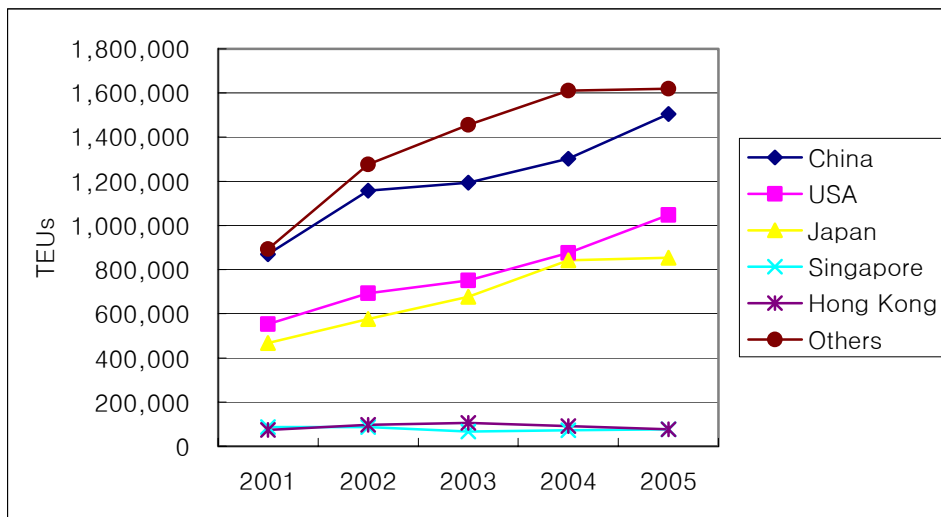
Growth of Container Throughput at Busan Port



Source: Busan Port Authority (2006)

The volume of transshipment cargoes at the port of Busan accounts for 44 percent of total container throughput in 2005. Its transshipment cargoes are gradually increasing and most transshipment cargoes are originating primarily from, or are destined for, China, USA and Japan. In particular, 60 percent of Chinese transshipment cargoes originated in or was destined for Shanghai, Dalian, Tianjin and Qingdao in 2000⁴. Transshipment cargoes of 1.5 million TEUs were originated from or destined for China, 1.04 million TEUs for USA, and 0.85 million TEUs for Japan in 2005.

Origin and Destination of Transshipment Container Cargo at Busan Port



Source: Busan Port Authority (2006)

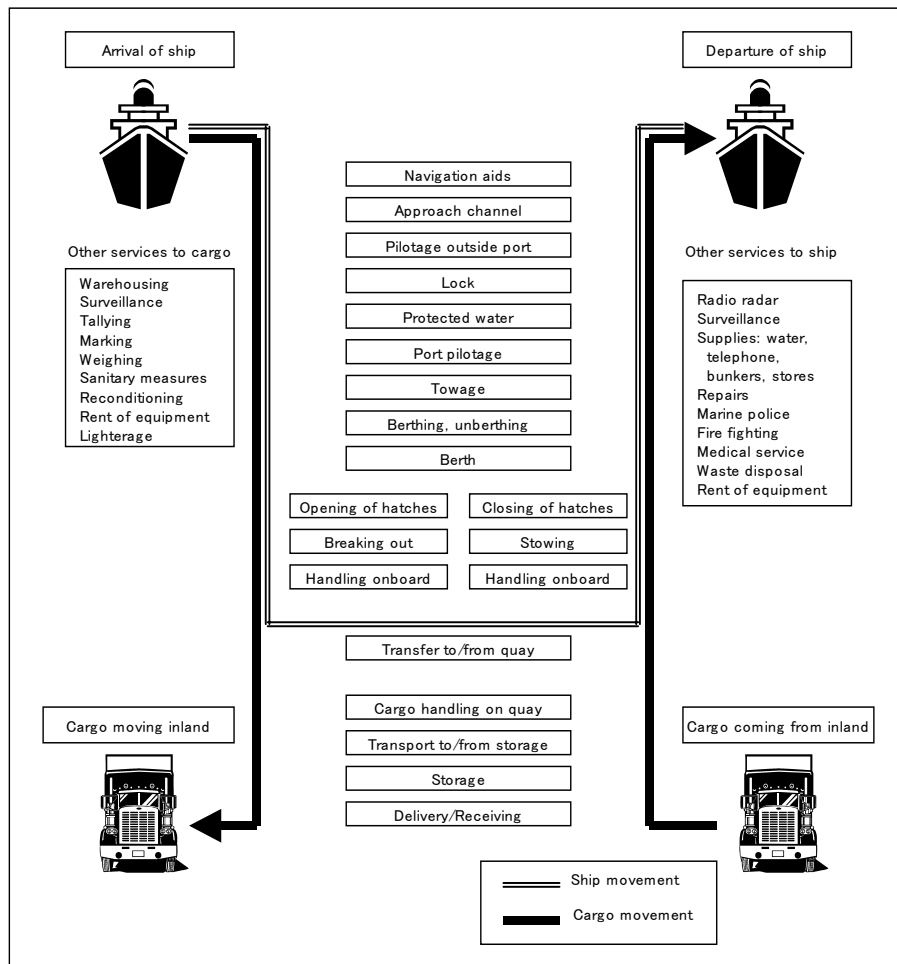
2.2 Characteristics of logistics business

■ Types of Logistics Businesses in Busan

Logistics businesses in Busan have been growing along with the development of Busan port. A port is essentially a point where goods are transferred from one mode of transport to another. On the seaward side the port is concerned with ships that bring in cargo for discharge and/or load and is given shelter or storage and then transferred into ships or is taken from the ships for distribution in the hinterland.⁵ In the process of cargo and ship movement a variety of services are provided by a port. Each service is relevant to port and logistics business and can be largely classified into transport, stevedoring, packaging, information, warehousing, ship related services, and manufacturing. Busan, one of the busy port cities in the world, is a good location for

logistics businesses. Shipping and port related companies are concentrated around Busan city.

The Movement of Cargo and Ship through a Port: Main Facilities and Services Provided by a Port



Source: ESCAP, Use of Maritime Transport, ST/ESCAP/516.

■ Features of the Port and Logistics Industry in Busan

In 2002 gross sales of the port and logistics industry in Busan amounted to \$14 billion, 17% of whole industry in sales. The number of companies amounted to 18,191 with 92,922 people employed in the port and logistics industry.⁶ Among the port & logistics companies transport companies account for about 56% and service companies for 20% and manufacturing companies related to port & logistics business account for 18%. In terms of the employment service companies employ 33,011 people and have the largest share followed by transport companies which employ 24,728 people. In

terms of gross sales in 2004 service companies have the largest share among the port and logistics business.

Port & Logistics Industry in Busan

Type of Business	No of Company	Share(%)	No of Employment	Share(%)	Gross sales (million won)	Share(%)
Transport	10,309	56.6703	24,728	26.6117	4,205,061	29.8500
Stevedoring	357	1.9625	8,215	8.8409	2,233,413	15.8541
Packaging	55	0.3023	911	0.9799	38,521	0.2734
Information	7	0.0396	54	0.0581	5,562	0.0395
Warehousing	241	1.3248	2,870	3.0886	573,730	4.0727
Service	3,808	20.9301	33,011	35.5261	5,809,517	41.2393
Manufacturing	3,414	18.7703	23,133	24.8947	1,221,516	8.6710
Sum	18,191	100.0000	92,922	100.0000	14,087,320	100.0000

Source: Busan Metropolitan City (2004)

■ SWOT Analysis of the Port and Logistics Industry in Busan

The port and logistics industry in Busan has its own strength, weakness, opportunity, and threat. One of the main strength factors is that port and logistics business in Busan naturally clustered together along the Busan port areas. Busan is the perfect business base for shipping, port and logistics companies offering all kinds of complimentary services related to maritime business. About 96,700 ships called at the port of Busan in 2005 and it amounted to about 710 million gross tonnages. Seaborne cargo handled in Busan amounted to around 220 million tons and container throughput excluding transshipment cargoes amounted to 6.5 million TEUs in 2005.

It is anticipated that export and import cargoes using the Busan port will be gradually growing together with economic growth in Korea. Busan is also an ideal location for shipping companies, port operators, international logistics companies, and maritime service companies due to its availability of extensive maritime and technical knowledge in maritime business management.

Port and logistics is a promising industry in Busan and has an enormous potential to grow. Central government and Busan metropolitan city have introduced various measures and plans to develop the port and logistics industry in Busan. The project to build 30 container berths by 2015 at the Busan New Port and the designation of free trade zones will boost port and logistics business.

One of the main weaknesses of the port and logistics industry in Busan is that most logistics companies are small in size and there is lack of global logistics companies. With the growth of port and logistics business there is high demand for logistics professionals. To meet its demand it is required to develop a variety of educational program in the field of maritime business and logistics.

Nowadays ports compete with neighboring ports to attract more customers and become a regional hub port. For example, in Northeast Asia container ports in China, Japan and Korea have its own plan to become a regional hub port. A rapid development of port infrastructure in China has become a threat to Korea and Japan.

SWOT Analysis of the Port and Logistics Industry in Busan

Strength	Weakness
<ul style="list-style-type: none"> . Natural clustering of port & logistics industry . Growth of seaborne cargo . Growth of ship's callings . Port time and cost competitiveness . Know-how & skills in port & logistics business management 	<ul style="list-style-type: none"> . Small size of logistics business . Lack of logistics professionals . Lack of multinational logistics companies
<ul style="list-style-type: none"> . Growth of port & logistics business . Growth of investment in logistics centre in Northeast Asia by multinational companies . Designation of free trade zones . Recognition of port & logistics industry as a core industry to develop by central and Busan metropolitan city. 	<ul style="list-style-type: none"> . Rapid development of port & logistics infrastructure in China . High competition to develop a regional logistics hub port and city in Northeast Asia . Attraction of international logistics companies in China . Penetration of overseas logistics companies into Korean logistics markets
Opportunity	Threat

Source: Busan Metropolitan City (2004)

3. Logistics Clusters in Busan

3.1 Theoretical review of clusters and its importance

Over the last two decades a great attention has been paid to cluster theory as an important tool for better describing economic activity in services or knowledge-based regional economies. The essence of this theory is that the value of the whole exceeds the

sum of its parts. Michael Porter is a leading proponent of the theory. He defines a cluster as geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions that compete but also co-operate.

With regard to cluster dynamics Porter argues that clusters must innovate, improve productivity, improve access to employees and suppliers and information, exploit complementarities, give birth to new businesses, and engage locally. To improve the competitiveness of the cluster it needs a cluster level, collective response, and new modalities for public private partnership. The cluster concept forms an important component of many governments' policies stretching from the UK to Singapore to Australia and into the US.⁷

3.2 Cases of maritime clusters

In the maritime world there are several maritime clusters that explicitly identify themselves as "clusters". For example, Mersey Maritime, Connecticut Maritime Coalition, Denmark-Sweden Joint Maritime Cluster, and Finnish Maritime Cluster are identified as more formal organizations representing all possible maritime related sectors. Some maritime clusters include perhaps just two or three sectors. NW Europe, the US, and SE Asia are the main locations for maritime cluster initiatives.

There are a number of ways of representing maritime clusters. A maritime cluster can be thought of as comprising a number of sectors. Each sector is made up by its components. In the maritime industry, for example, a maritime cluster consists of shipping company as one of the main maritime sectors and a number of shipping company associated companies as components. Supply chain relationships exist between components and sectors. Representation of a cluster as sectors and components divides the cluster up for analysis and understanding. However, the cluster approach must rely on sticking these together to facilitate growth. The benefit of cluster level thinking is that it sees a wealth generating comparative advantage holistically. The following organizations seek collective action to raise collective competitiveness.⁸

■ Mersey Maritime

Mersey Maritime is one of the UK's most dynamic clusters for the maritime industry. It was established in February 2003 to represent and act on behalf of the maritime sector on Merseyside. Its purpose is to act as a catalyst to drive sector growth

and investment, whilst raising the profile of the industry locally, regionally, nationally and internationally. Mersey Maritime works on behalf of all 500 maritime-related companies in the region, employing 6,000 people in Merseyside with a turnover of £1.3 billion per annum. Mersey Maritime cluster consists of engineering companies, freight forwarders, port operators, shipping lines, haulage companies, warehouse operators, logistics companies, ship supply, and many more world class enterprises across the widest possible range of maritime businesses. The main objectives of Mersey Maritime are as follows⁹:

- Grow tonnage, turnover and profitability
- Increase employment numbers
- Galvanise all 500 companies into forward looking entity with highly skilled, motivated and customer focused staff
- Communicate Mersey Maritime as modern growth business
- Make Mersey Maritime the destination for world class training facilities
- Integrate the communication with all local communities on key issues
- Become the champion of Mersey Maritime business on a lobbying platform
- Fulfil and enhance its environmental duty
- Build up the region as a centre of excellence for logistics
- Make the Mersey Maritime Cluster the first successful one of its kind in the UK

■ Connecticut Maritime Coalition

The Connecticut Maritime Coalition was established in 2000 as a non-profit trade association facilitating the competitiveness of Connecticut's maritime industries in the US. Its cluster network is mostly composed of small and medium-sized business. Together, its group has reached a consensus on the issues facing the maritime industries in Connecticut and an approach to solve these issues. But it takes many projects, partners and resources to stimulate change. Its goal is to serve as the linchpin between maritime businesses and policy makers. Connecticut's Maritime Industry Cluster includes 349 businesses, 12,225 jobs, \$553.3 million payroll, and \$2.6 billion in sales.¹⁰

■ Denmark - Sweden Joint Maritime Cluster

Known as the "Maritime Development Centre for Europe", Denmark–Sweden Joint Maritime Cluster is the first pan-national attempt at a collective action organization for maritime industries. The Maritime Development Center of Europe is a cross-sectoral interest organisation based in Copenhagen. Members are from both Denmark and Sweden and include¹¹:

- Ship owners and operators
- Shipyards
- Equipment and component manufacturers
- Port Authorities
- Research and educational Institutions
- National authorities
- Trade and interest organisations
- Service and consultancy companies
- Finance and insurance companies

■ Hong Kong Maritime Industry Council

Hong Kong, known as the pre-eminent maritime centre in Asia and in the world, has built up this reputation by their efficiency, competitiveness and professionalism in maritime services. Hong Kong has a very comprehensive maritime network of experienced shipowners, ship management companies and companies providing ship finance, insurance, brokerage, surveying, repairing, arbitration and legal services. Maritime industry cluster in Hong Kong includes as follows¹²:

- Hong Kong Shipping Register: Hong Kong Shipping Register (HKSR) offers the most competitive package, complemented by a simple and speedy registration/deregistration process. The HKSR is operated by the Government of the Hong Kong SAR through the Marine Department which has over 150 years of experience in ship registration, inspection and survey.
- Maritime Law and Arbitration: Hong Kong maintains its common law system under the "one country, two systems" arrangement with the Mainland. Being an associate member of the International Maritime Organization, Hong Kong is able to influence international discussions on shipping conventions.
- Ship Finance and Marine Insurance: Hong Kong is the leading international ship finance centre in Asia, providing comprehensive ship finance services to the shipping industry. All of the major P&I Clubs have representative offices in Hong Kong. International group clubs have been encouraged to set up regional centres in Hong Kong, for both underwriting and claims administration purposes.
- Ship Owning and Ship Management: Some of the world's largest and oldest ship management companies are based in Hong Kong. Many of them take leading roles in the International Ship Managers Association.

- Classification Societies and Surveyors: More than a dozen vessel classification societies and surveying firms are represented in Hong Kong. They provide a highly-skilled workforce of surveyors capable of carrying out surveys of hull, machinery and equipment on visiting vessels.
- Shipping Agents: To provide support for the tens of thousand of vessels that call at Hong Kong each year, there are a large number of agents, brokers and freight forwarders providing services, including booking cargo space on visiting vessels, organising onward distribution of freight and various logistic services.
- Local and International Bodies and Associations: Hong Kong is an associate member of the International Maritime Organization (IMO) and participates in various IMO activities.
- Marine Equipment and Support Services: Building on Hong Kong's strong maritime community, many international marine service providers have presence in Hong Kong, providing supplies and support services ranging from ship maintenance and repair, bunkering, waste disposal, IT and communication services, auditing and tax advisory, education to training services.
- Shipbrokers: Several of the largest global players in the shipbroking industry choose Hong Kong as their regional base. The ability of Hong Kong's shipbrokers to develop a broad base of business outside of Hong Kong and Hong Kong's role as a major cross-trading centre for business allow Hong Kong to retain a vibrant shipbroking community.

In 2005 there were 10,275 transport related companies in Hong Kong with 183,752 people employed in the transport industry. The most concentrated business is transport related services with 5,363 companies and 57,063 people employed, followed by water transport related services with 2, 947 companies and 18,322 people.

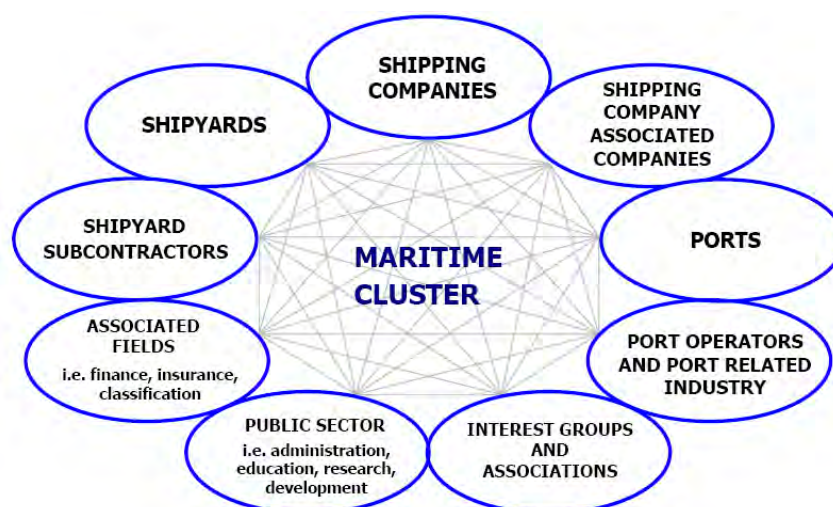
Maritime Cluster Profile of Hong Kong

Business	2004		2005	
	No. of Comp.	Personnel	No. of Comp.	Personnel
Land passenger transport	10	31,496	10	31,192
Land passenger transport related services	458	6,656	425	6,305
Deep-sea and coastal shipping	271	7,570	271	7,203
Inland water transport	4	1,205	4	1,160
Water transport related services	2,966	19,266	2,947	18,322
Air transport	139	26,056	139	27,700
Transport related services	5,000	52,870	5,363	57,063
Warehousing	347	5,503	400	5,655
Telecommunication(long distance)	430	19,561	376	17,831
Telecommunication(short distance)	605	11,085	640	11,321
Sum of transport related industry (share, %)	10,230 (3.5)	181,268 (7.9)	10,575 (3.6)	183,752 (7.8)
Total of whole industry	289,897	2,302,110	296,249	2,348,672

Source: Jung, B. M. and Kim, C. H. (2007)

■ Finnish Maritime Cluster

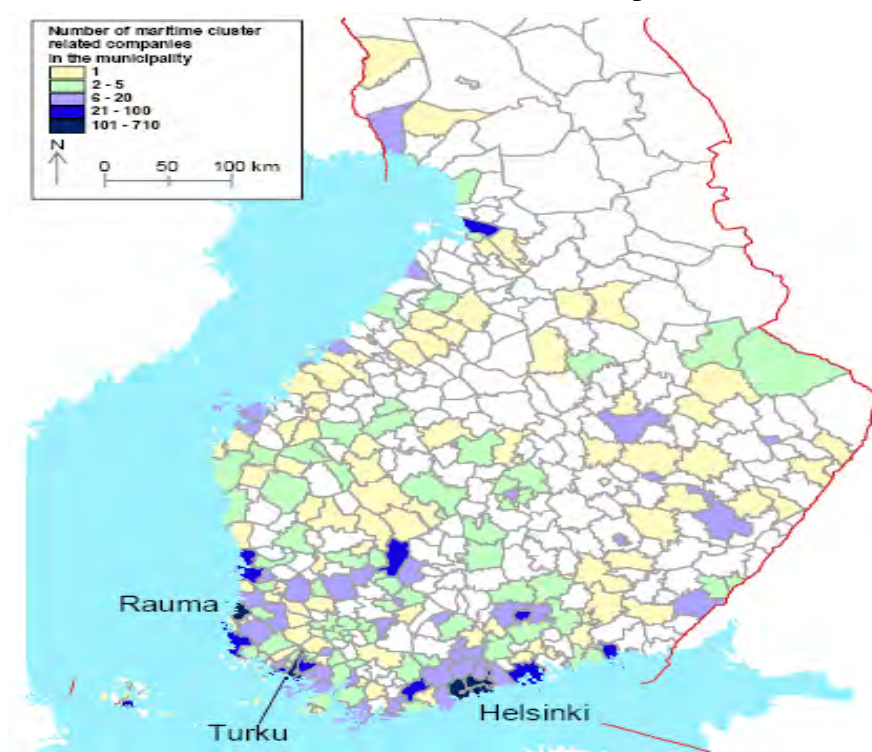
A maritime cluster formed by several branches of industry exists in Finland. For example, seafaring, marine industries and port activities in the public and private sectors belong to the maritime sector.



Source: mkk.utu.fi/english/liitteet/seacluster.pdf

Most of the maritime cluster companies are situated in the coastal municipalities in large cities. The companies are clearly concentrated in the Helsinki, Turku and Rauma areas. In these areas and in the Aland Islands the influence of the maritime cluster is at its greatest. Numerous maritime cluster companies have concentrated in the Tampere and Lahti areas. In addition, there are many maritime cluster companies in large inland cities such as Kuopio, Jyväskylä, Savonlinna and Lappeenranta that are situated along the waterways.¹³

Locations of Maritime Cluster Companies



Source: mkk.utu.fi/english/liitteet/seacluster.pdf

According to the Finnish maritime cluster study 241 companies from different maritime cluster fields were taken into account and interviewed. The total revenue of this group in 2001 was about EUR 16.5 milliard, of which the maritime sector share was about EUR 7.7 milliard. The companies employed about 87,000 people, of which about 35,000 worked in the maritime sector. Large maritime cluster companies are highly international and their export is important for the national economy. For example, the export of the 113 most significant shipbuilders and port-related companies was worth over EUR 4 milliard in 2001. Maritime cluster companies generate important cash flows into the Finnish national economy¹⁴.

Key Figures of Finnish Maritime Cluster

Companies	No. of Comp.	Turnover	Maritime sector share		No. of Comp.	Staff	Maritime sector share	
		MEUR	%	MEUR		No	%	No
Shipyards	5	1,549	100	1,549	5	6,657	100	6,657
Shipyards subcontractors	136	8,919	30.1	2,681	132	41,942	25.9	10,846
Shipping companies	18	2,123	100	2,123	18	9,558	100	9,558
Ports	25	182	100	182	27	1,067	100	1,067
Shipping co. related	38	2,914	13.4	390	38	22,727	7.3	1,659
Port operators	17	446	91.8	409	17	3,930	98.6	3,875
Port related	2	384	97.3	374	2	1,100	95.9	1,055
Total	241	16,517		7,709	239	86,981		34,717

Source: mkk.utu.fi/english/liitteet/seacluster.pdf

■ Rotterdam Maritime Cluster

In 2005 there were 1,887 maritime cluster companies in Rotterdam. Among them stevedoring and cargo handling companies have the largest share, accounting for 468 companies with the share of 24.8 percent, followed by agent business(20 percent), shipping related services(18.5 percent), and transport business(17 percent). The most concentrated businesses include ship chandler, freight forwarding, cargo handling, warehousing, road transport, and shipbuilding and repairing.

Maritime Cluster Profile of Rotterdam

Business	No. of Comp.	Share(%)	Type of Business (no. of companies)
Transport	321	17.0	shipping(85), water transport(71), rail transport(14), land transport(109), other transport(42)
Agents	377	20.0	shipping agents(72), forwarding(165), NVOCC(54), customs related services(44), shipbrokers(7), other agents(35)
Stevedoring, Cargo handling	468	24.8	port stevedoring(70), warehousing(129), distribution(47), container services(90), other stevedoring(132)
Shipping related services	350	18.5	pilot, line handling, tugs(5), ship chandler(190), waste disposal(23), shipbuilding and repairing(94), tug and ship salvage(21), other shipping related services(12), crew management(5)
Manufacturing related services	105	5.6	contract and technical supporting services(15), public technology(5), repairing and tallying(9), environmental service(16), electricity supply(8), industrial gas supply(4), industrial water supply(2), hoist equipment(10), others(36)
Business supporting services	131	6.9	Business supporting service(61), consulting(31), others(39)
Manufacturing and trading	135	7.2	agriculture(10), oil products(6), oil manufacturing(11), chemical(41), metal products(4), building materials(2), others(61)
Total	1,887	100.0	

Source: Jung, B. M. and Kim, C. H. (2007)

Added values created by logistics activities in Rotterdam port were about 6.17 billion Euro in 2005. Transport and logistics services generated added values of 3.2 billion Euro, accounting for 51.8 percent.

Value added of Port & Logistics Industry in Rotterdam

Business	2003	2004	2005
Manufacturing	2,379	2,350	2,406
Transport & Logistics	2,973	3,100	3,197
Services	547	570	570
Total	5,899	6,020	6,173
GNP share(%)	1.7	1.9	1.9
GRP share(%)	20.9	22.2	22.2

Source: Jung, B. M. and Kim, C. H. (2007)

3.3 Characteristics of port clusters in Busan

■ Port Cluster Companies in Busan

A maritime cluster formed by several branches of industry exists in Busan and maritime and its associated business have the largest share in Korea. About 41.3 percent of shipping companies are located in Busan, followed by 10.9 percent of land transport companies, 18.4 percent of warehousing, 35.3 percent of port operation and port related business such as bunkering services, supply services, container repairing services, and tallying services etc. In particular, container repairing services and supply services account for 48.9 percent and 45.1 percent respectively in 2002.

Share of Port & Logistics Business in Busan

Unit: Number

	Land transport	Maritime transport			Warehousing				Total
		Ocean going shipping	Coastal shipping	Others	General cargo	Refer cargo	Dangerous goods	Others	
National	2,394	240	172	55	833	223	82	270	4,269
Busan	262	96	85	12	92	41	10	21	619
Share(%)	10.9	40.0	49.4	21.8	11.0	18.4	12.2	7.8	14.5

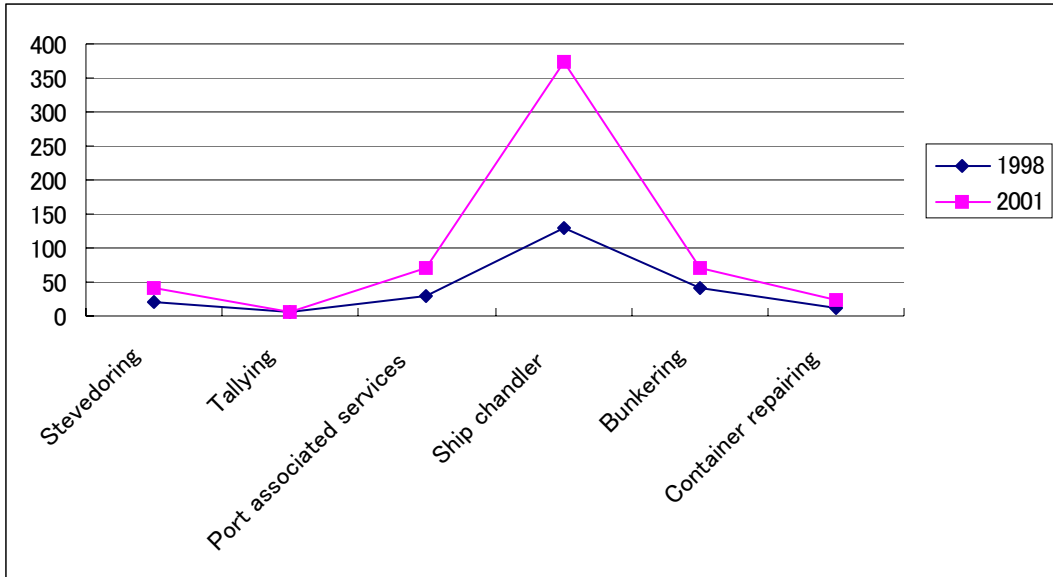
Source: Busan Metropolitan City (2004)

■ Development of Port Cluster Companies

Port and port associated business is growing from 1998 to 2001. The number of stevedoring companies was 22 in 1998 and increased to 42 in 2001. Port associated services increased from 30 to 72 companies, bunkering from 40 to 71 companies, and container

repairing from 13 to 23 companies. Ship chandler business has grown significantly from 129 to 373 companies in 2001.

Comparison of Port Business between 1998 and 2001



Source: Busan Metropolitan City (2004)

■ Locations of Port Cluster Companies in Busan

There were 18,191 port cluster companies with 92,922 people employed in Busan and its turnover amounted to 14,000 billion won in 2002. Most of port cluster companies are situated in Yeongdo-gu and Jung-gu with 2,369 and 2,365 in number respectively followed by Sasang-gu(1,902), Saha-gu(1,887), and Jin-gu(1,289).

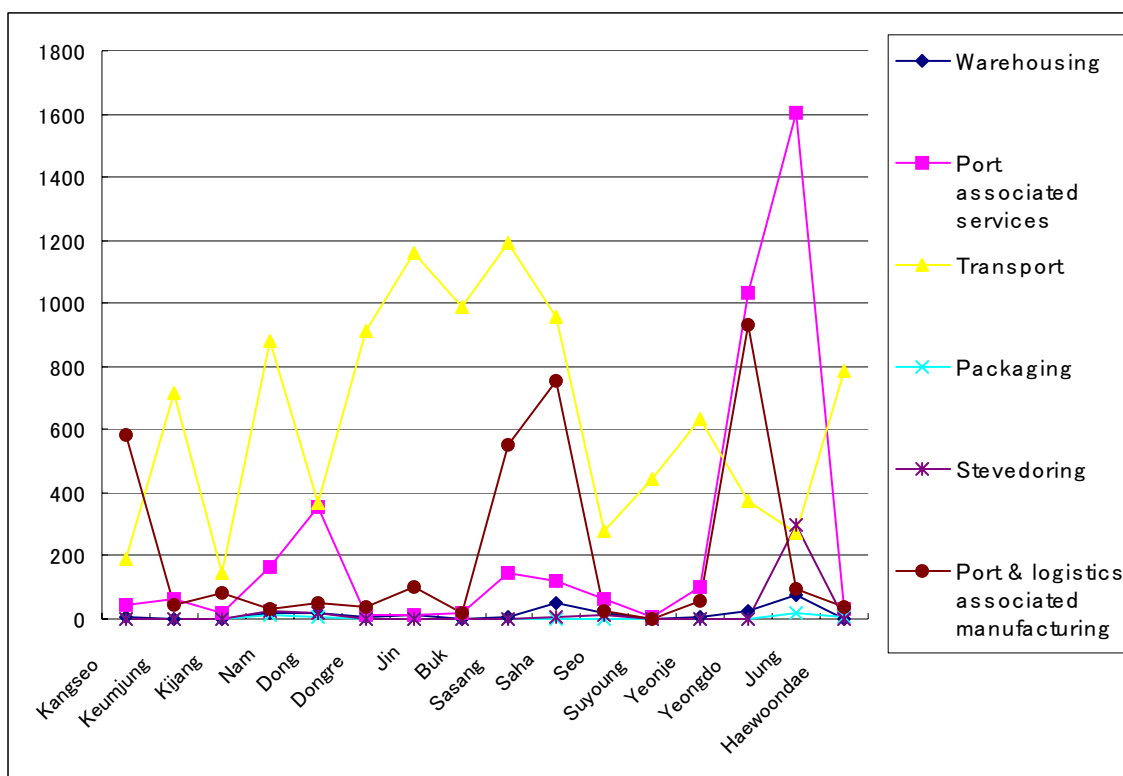
Locations and Number of Port Cluster Companies in Busan

Locations	No. of Companies	No. of Personnel
Kangseo	830	10,004
Keumjung	829	1,634
Kijang	254	932
Nam	1,129	8,672
Dong	818	9,454
Dongre	972	1,522
Jin	1,289	4,295
Buk	1,030	1,250
Sasang	1,902	5,770
Saha	1,887	9,101
Seo	402	1,825
Suyoung	455	760
Yeonje	794	1,376
Yeongdo	2,369	14,074
Jung	2,365	20,479
Haewoondae	866	1,774
Total	18,191	92,922

Source: Busan Metropolitan City (2004)

Most of port associated service companies are located at Jung-gu with 1,604 companies, followed by Yeongdo-gu with 1,035 companies. In the case of transport business most companies are located at Sasang-gu with 1,193 companies and Jin-gu with 1,161 companies followed by Buk-gu (988), Saha-gu (954) and Nam-gu (879). Most stevedoring companies are situated at Jung-gu with 298 companies and 2,286 people employed. Port & logistics associated manufacturing companies are clearly concentrated in Yeongdo-gu and Saha-gu.

Type and Number of Port Cluster Companies in Busan



Source: Busan Metropolitan City (2004)

■ Economic Impacts of Port Cluster Companies in Busan

Port and logistics companies are important for the national and local economy. Port cluster companies generate significant production, income and employment in Busan economy. It is important to examine the economic impacts of the port and logistics industry on production, income and employment when one billion won is invested. Considering production water transport associated services generate the greatest value of 5,696 million won, followed by ocean going shipping (3,464 million won), road transport associated services (3,224 million won), air transport (3,151 million won), and shipbuilding (3,057 million won).

In terms of income rail transport generates the greatest value of 1,052 million won, followed by ocean going shipping (701 million won), other transport associated services (673 million won), stevedoring (638 million won), air transport (615 million won), port facilities (567 million won), and water transport associated services (562 million won). Road associated services are considered to be the most important industry in terms of creating employment, followed by port facilities, shipbuilding, and air transport associated services.

Economic Impacts of the Port & Logistics Industry

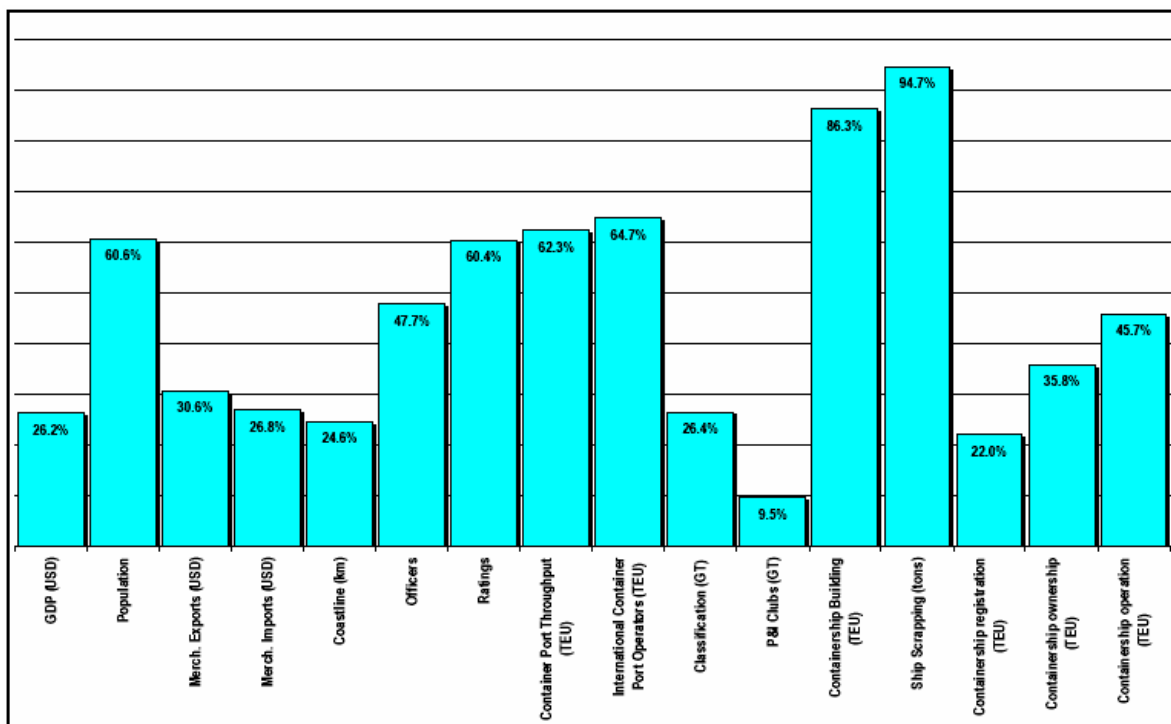
Industry	Production generation (million won)	Income generation (million won)	Employment generation (personnel)
Shipbuilding	3,057	378	26
Port facilities	2,354	567	28
Rail transport	2,877	1,052	15
Road transport	2,475	558	16
Coastal shipping	2,584	541	12
Ocean going shipping	3,464	701	18
Air transport	3,151	615	16
Road transport associated services	3,224	457	31
Water transport associated services	5,696	562	18
Air transport associated services	3,119	529	24
Stevedoring	2,683	638	16
Warehousing	2,127	436	13
Other transport associated services	2,383	673	16

Source: Busan Metropolitan City (2004)

3.4 Comparison of maritime clusters in Asia

It is known that countries are maintaining a participation only in certain parts of the maritime industry, depending on their comparative advantages. It is important to understand what extend different Asian countries are specializing in different maritime sectors. Asian countries have a greater participation in many maritime sectors than Asia's GDP or international trade.¹⁵ The following figure shows Asian maritime profile. The Y-axis shows each economy's market share in the world. Asian economies have the highest market share in the ship scrapping sector, representing 94.7 percent of market share in the world and 86.3 percent in the containership building, followed by 64.7 percent in international container port operators and 62.3 percent in container port throughput.

Asian Maritime Profile: Asia's Participation as Percent of World Total

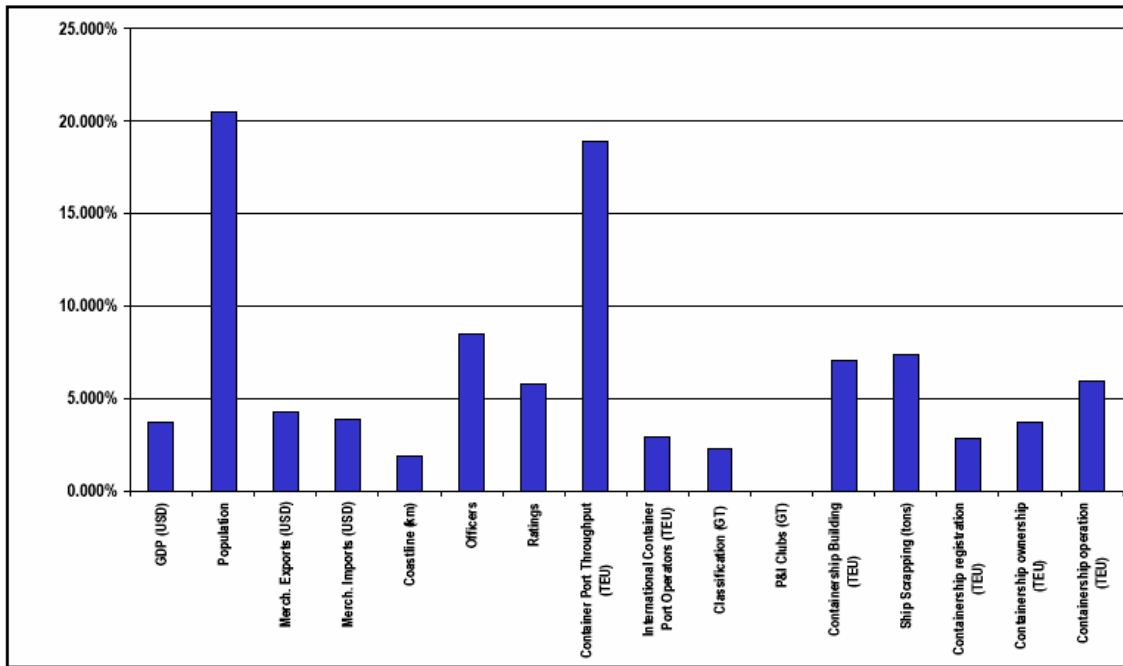


Source: Hoffmann (2004)

According to maritime profile of China, container port throughput is more concentrated than other maritime sectors. Chinese economic growth has contributed to the rapid increase of container cargo handlings in Chinese ports. In particular, Chinese ports such as Shanghai and Shenzhen are handling a large amount of TEU throughput. They rank 3rd and 4th respectively in terms of container throughput.

Officers, ship scrapping, containership building, containership operation, and ratings are identified as more specialized maritime sectors in China. Nowadays China has become one of the major seafarer supply countries due to its competitiveness of labour costs. In Asia, Korea, Japan and China are major shipbuilding countries. With the increase of world seaborne trade there is a demand for new shipbuilding. Chinese shipyards are expanding their shipbuilding capacity and penetrating into international shipbuilding market. Recently they are showing a good performance of shipbuilding orders in containership and bulk carriers. About 95% of world ship scrapping takes place in Asia and China is one of the major ship scrapping countries.

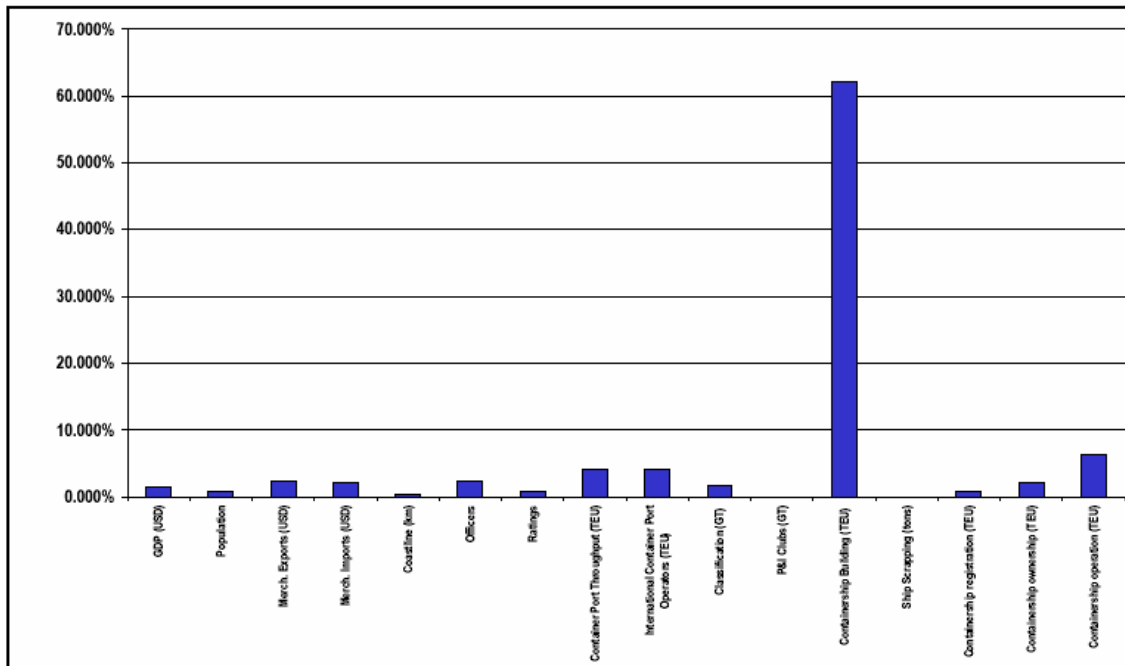
Maritime Profile of China



Source: Hoffmann (2004)

Korean maritime profile shows containership building is the most concentrated sector among several maritime industries. This represents Hyundai, Samsung, Hanjin are the world's three biggest containership builders, in terms of TEU. Containership operation, container port throughput and international container port operators are identified as more specialized maritime industries in Korea. Hanjin and Hyundai are global container carriers providing deep-water liner services worldwide. Also there are many small and medium-sized container carriers in Korea providing short sea liner services. Busan port ranks 5th in terms of container throughput and global terminal operating companies such as Hutchison, PSA and DPI are operating container terminals in Korea.

Maritime Profile of Korea



Source: Hoffmann (2004)

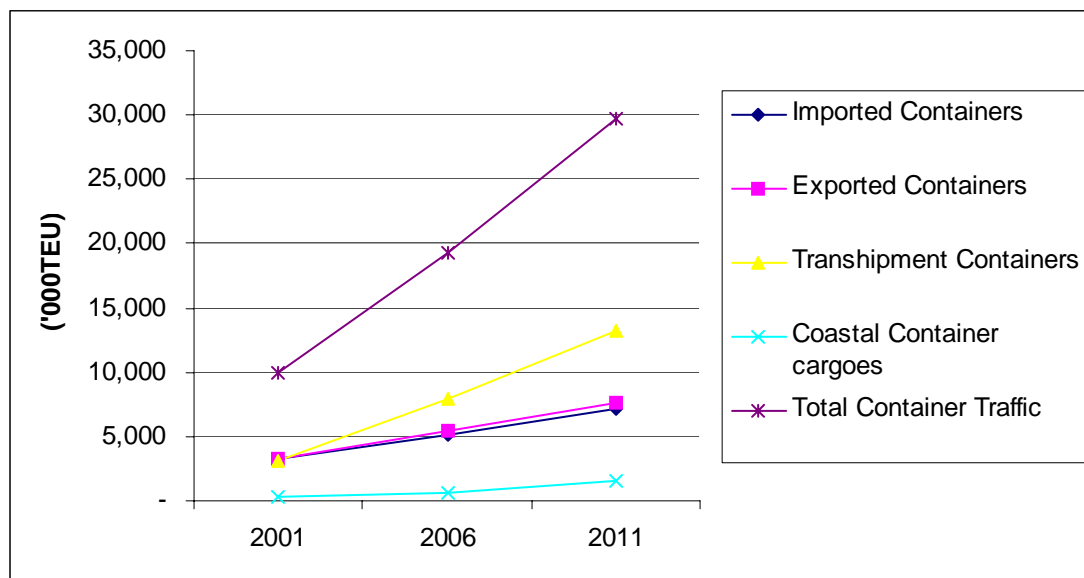
4. Logistics Policies and Its Impact on the Logistics Industry

4.1 Port & logistics policies in Korea

■ Overview of Port Policy

The ambitious port development projects have been initiated to meet the growing demand for port services in Korea. According to the forecast of container traffic, total container cargo throughput being handled in Korean ports will increase to nearly 30 million TEUs by 2011, and 44 percent of the cargo volumes will be transshipment container cargoes.¹⁶ The Government is currently planning to add 59 new deep-sea berths spread over 11 phased port projects between 2002 and 2012. By 2015, the Busan New Port (BNP) will be equipped with 30 berths and the Gwangyang port will have an additional 25 berths. The Government aims to develop Busan and Gwangyang as logistics hub ports in Northeast Asia by attracting global logistics firms targeting Northeast Asian hinterland markets and by establishing innovative integrated logistics service systems.

Forecast of Container Traffic in Korea

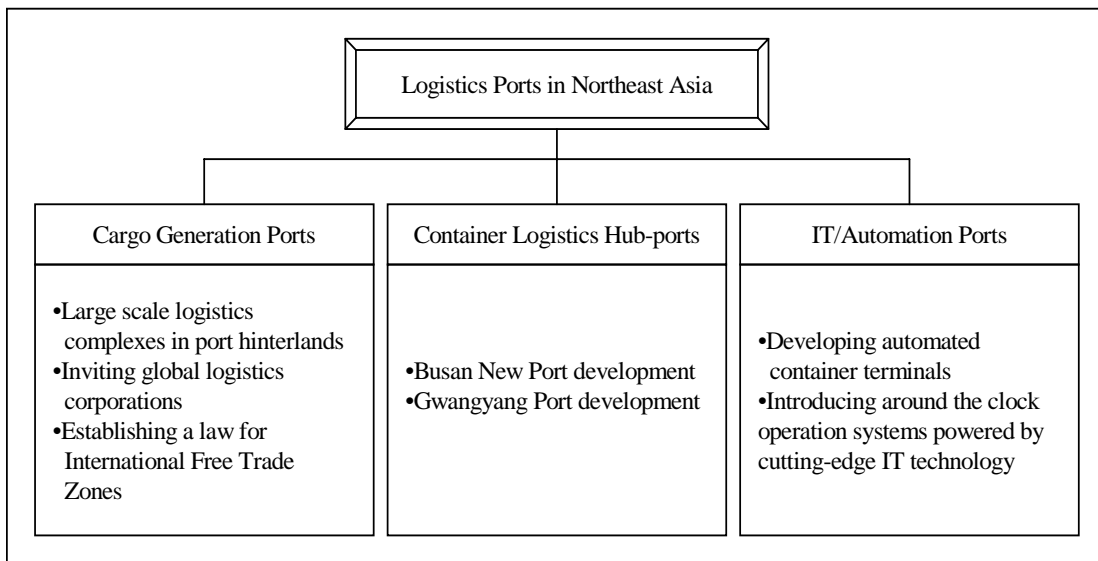


Source: MOMAF (2001).

To achieve the status of logistics hub ports in Northeast Asia the Government is implementing a number of strategies. For example, to generate port traffic and attract global logistics companies it is planned to build large scale logistics complexes in the port hinterlands. The companies operating in the complexes are allowed to conduct business activities such as reprocessing, assembling, packaging and labeling. The hinterland areas of 307ha in the Busan New Port and 233ha in the Gwangyang port respectively will be developed by 2013. It is scheduled to complete the development of 82.6ha in the BNP and 33ha in Gwangyang by 2006. Those complexes will also be designated as Free Trade Zones (FTZ) with the introduction of a new law for International Free Trade Zones, which provides corporations registered in the FTZ with favorable lease rates for real estate and tax benefits.¹⁷

In addition, to ensure customer satisfaction and increase terminal productivity the Government is planning to introduce sophisticated IT technology in container terminal operation and management especially in newly developing container terminals. At the BNP a semi-automated operation system will be introduced and an automated container terminal is being developed at the Gwangyang port. To strengthen logistics competitiveness flexible labor management will be adopted and around the clock operation systems powered by cutting-edge IT technology will be introduced.

Vision of Port Development Policy in Korea



Source: MOMAF (2004).

■ Development of Busan New Port

The Ministry of Maritime Affairs and Fisheries (MOMAF) is making an every effort to expand port infrastructure to meet the growing volumes of seaborne cargoes including container cargoes. The present capacity of North port in Busan alone is sufficient to accommodate the rapidly increasing container cargo volumes. To meet increasing growth of container traffic the Government launched a project of building Busan New Port (BNP) in 1995.

Total 30-berth container terminals will be developed by 2015 under the Busan New Port project,. The first three berths were completed in 2005 and three additional container berths were open in 2006. These six berths, which make up phase-one of the entire development project, will have 2,000 metres of berth, an initial depth of 16 meters and a capacity of 3.4 million TEUs.

This project is planned to construct container berths of 9.95km, breakwater of 1.49km, dredging 72 million m² and bank protection of 20.7km. The Government will fund the constructions of fundamental facilities, such as breakwater, shore protection, transportation facilities and a multi-purpose pier. Operational facilities, such as 29 container berths and the harbour site will be developed through private investment. Total project costs are estimated to be 9,154.2 billion won consisting of 4,173.9 billion won from government and 4,980.3 billion won from private sectors.

The hinterland of the BNP will be designated as a free trade zone, in which various business activities such as manufacturing, processing, assembling and exhibition are

allowed and tenants would be given budget and tax support. With the construction of the BNP it is anticipated that Busan would enhance national competitiveness through smooth processing of export and import cargoes and increase cargo handling capacity of 8.04 million TEUs per year.¹⁸

Busan New Port



Project Plan of Busan New Port

Classification		Overall (1995~2011)	Stage 1 (1995 ~2008)	Stage 2 (2009 ~2011)
Total	Project Cost (100 million won)	91,542	55,519	36,023
	Project Scale (berth number)	30	14	16
	Handling Capacity (10,000 TEU)	804	352	452
Government	Project Cost (100 million won)	41,739	28,012	13,727
	Project Scale (berth number)	1.49km of breakwater	1.49km	-
		20.8km of ground revetment	20.8km	-
		62million m ² of dredging	40 million m ²	22 million m ²
		Connecting 0.3km of pier 0.4km of multi-purpose wharf (1 berth)	0.3km 0.4km (1 berth)	-
		1 fishery compensation	1	1
Private Sector	Project Cost (100 million won)	49,803	27,507	22,296
	Project Scale (berth number)	9.55km (29)	4.3km of quay wall (13)	5.25km (16)

Source: Busan Regional Maritime Affairs and Fisheries Office (2004).

■ Designation of Free Trade Zone

In the globalised economy, manufactured products are no longer produced in one country to be sent to another. On the contrary, the manufacturers search the globe for the cheapest logistics system and produce their goods in those places offering the most advantageous conditions of raw materials, workforce, transport systems, distribution channels and access to end markets.

Special customs-privileged places, so-called free trade zones, free ports and export processing zones provide facilities for firms to perform their business activities such as

transit trade, storage, distribution and manufacture. Especially, multinational corporations prefer to conduct their commercial activities within the zones enjoying freedom from customs duties and taxes. Today, there are many free zones worldwide and a number of countries have spent millions of dollars to establish the zones with the aim of attracting foreign investment and strengthening their national or regional economy.¹⁹

Particularly with the changes in logistics management systems and the emergence of hub/feeder networks, seaports in Northeast Asia are in fierce competition with each other to attract international traffic. As a result they are expanding their port facilities and diversifying port functions in order to play a leading role in international logistics chain. In line with this development the Korean Government recognised that the value added logistics function of a port was most important to gain competitive advantages over competing ports in Northeast Asia. This led to the introduction of ‘the Act on Designation and Management of Free Trade Zones for Building International Logistics Centres’ in 1999. In an attempt to attract global logistics firms and international traffic through utilising Busan’s advantageous geographical location the port was finally designated as free trade zone in 2002.²⁰

Vision and Operational Objectives of FTZ

Vision	<ul style="list-style-type: none"> To establish Korea as a center of logistics in North East Asia To strengthen national competitiveness in the era of globalization To attract a production and logistics center of global companies To develop a logistics center to leap forward an advanced nation in the 21st century
Operational Objectives	<ul style="list-style-type: none"> To operate FTZ with international competitiveness To equip with operation systems which maximize efficiency of logistics activities To pursue customer satisfaction management To contribute to the growth of national economy with the attraction of national and international investment

Source: MOMAF (2004).

Shinseondae container terminal, Hanjin container terminal and Cheil Jedang site at the port of Busan were appointed as FTZ. Port hinterland and reclaimed sites were also designated as prearranged FTZ.

Similar to free trade zones being operated in other countries within FTZ commercial activities are allowed with minimum customs formalities for the mutual benefit of the country in which the companies are located and the companies which operate from them.

Within the zone, the customs law is not applied and it is considered to be a foreign location in accordance with the customs law. In FTZ foreign registered firms are exempted or have a reduced direct tax, such as corporate tax, income tax, acquisition tax, registration tax, property tax and aggregate land tax. Moreover, diverse indirect tax exemptions are offered, such as the customs duties in FTZ.

With the designation of FTZ, Busan port is expected to operate beyond traditional roles of cargo handlings to encourage value-added logistics activities including repacking, customising, assembly, repair and processing. Other businesses such as financing, insurance, exhibition and manufacturing are also permitted in the zone.

The economic benefits of free trade zones to host countries vary with the type of free trade zone activities. Different types of free trade zones are, therefore, developed in response to particular government's objectives and policies. In the case of Busan port anticipated benefits of designating the port as a free trade zone include²¹:

- Employment creation effects according to investment induction by foreign and domestic companies;
- Creation of added values on port related industries;
- Increase in income of marine freight rates according to increase in goods transference and transit cargoes;
- Activation of mediation/processing trade by trade agents both from Korea and overseas;
- Increase of income from port and its related business;
- Reduction in transaction cost due to simplification of processes in product trading within the zone;
- Development of financial industry due to distribution of vast fund; and
- Facilitation of introducing foreign capital and technological induction.

Designation of Busan port as FTZ

FTZ	Expected zone
<ul style="list-style-type: none"> • Shinseondae container terminal • Part of Kamchon western terminal • Hanjin container terminal • Ex-Cheil Jedang (CJ) site 	<ul style="list-style-type: none"> • Hinterland adjacent to FTZ Yongdang site (near Shinsundae terminal) • Reclamation site for Korea Ship Repairing Industry Cooperatives and Dae Sun Shipbuilding and Engineering Co. Ltd. (Near Kamchon terminal)
Total: 1.277 million m ²	Total: 890,000 m ²

Source: Busan Regional Maritime Affairs and Fisheries Office (2004)

Area Subject to Designation and Status of Area Due for Designation

	Yongdang Region in North Port			Seopyeon Region in Gamcheon	
	Shinseondae Terminal Region	LME Warehouse Region	Chunil CY Region	Hanjin Terminal Region	Reclamation Site of CJ
Company Name	Shinseondae Container Terminal Co., Ltd.	Global Enterprises Ltd.	Chunil Cargo Transportation Co., Ltd.	Hanjin Shipping Co., Ltd.	Korea Land Corp
Lot Address	123, Yongdang-dong, Nam-gu	128-12, Yongdang-dong, Nam-gu	128-14, Yongdang-dong, Nam-gu	468, Gupyeong-dong, Saha-gu	468, Gupyeong-dong, Saha-gu
Area Size	1 million m ²	16,000 m ²	7,000 m ²	130,000 m ²	148,000 m ²
Proprietor	Ministry of Maritime Affairs and Fisheries	Ministry of Maritime Affairs and Fisheries	Ministry of Maritime Affairs and Fisheries	Hanjin Shipping Co., Ltd.	Korea Land Corp.

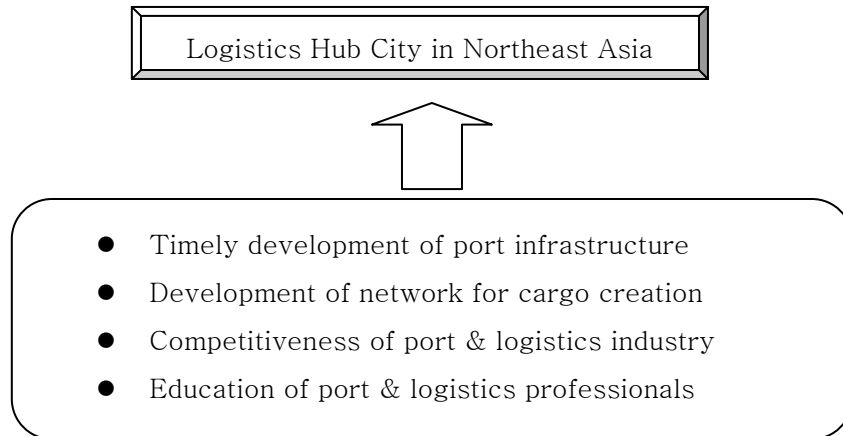
Source: Busan Regional Maritime Affairs and Fisheries Office (2004).

4.2 Port & Logistics policies of Busan Metropolitan City

Busan is an attractive location for carrying out maritime, port, and logistics business. As noted in the previous section port cluster companies play a significant role in the local economy. In 2002 Busan metropolitan city initiated the project of “Ocean Capital 21” to develop Busan as a center of maritime, port and logistics business in the era of blue revolution of ocean, globalization and knowledge information. Main development plans are as follows²²:

- Establishing a strategic plan for the project of “Ocean Capital 21” to suggest vision for a hub port in North East Asia and ocean capital in the 21st century
- Operating Busan free trade zones efficiently
- Operating LME storage
- Developing and operating portal site for shipping, port and logistics industries
- Strengthening the function of hub port in North East Asia

Vision for Developing Busan Port & Logistics Industry



Busan metropolitan city introduced a strategic plan to develop the port and logistics industry in Busan in 2004. It introduced seven major development plans and their economic impact on production, job creation, and value added creation are enormous. The main purpose of constructing Busan port plaza is to locate port related administration offices at the same place and to provide shipping, port related companies with one-stop services. This will save time and cost, and benefit the customers. Its project generates production with 0.8 billion won, value added with 0.4 billion won and creates jobs with 979 personnel. The construction of ship’s chandler distribution center is very important to become a hub port of Busan. Currently the ship’s chandler business

is small in size and its distribution system is inefficient. The distribution center will help to gain its competitiveness and become a leading ship's chandler market in Northeast Asia. Considering the growth of ship's calling at the port of Busan and the development of Busan New Port with 30 container berths, it is expected a great demand for ship's bunkering services. The timely building of bunkering facilities will meet its demand and also create new bunkering services²³.

Port & Logistics Development Plans

	Production (100 million won)	Job Creation (personnel)	Value added Creation (100 million won)
Construction of port plaza	845	979	400
Construction of ship supply(chandler) distribution center	858	995	360
Construction of ship's bunkering center	953	1,106	400
Construction of logistics distribution center	86	100	36
Construction of container trailer parking center	129	149	54
Construction of ship's repair center	715	829	300
Development of U-port systems	241	815	150
Total	3,827	4,973	1,700

Source: Busan Metropolitan City (2004)

4.3 Port Development Plans of Busan Port Authority

Busan port authority has designed a strategic plan to develop the port of Busan which is called "Busan port vision for 2020".²⁴ The vision for 2020 consists of three stages, such as short-term, mid-term and long-term plans. In the short-term from 2006 to 2010 it is focused on timely development of port infrastructure. In the mid-term from 2011 to 2015 the development of value added port is main concern. In the long-term from 2016 to 2020 the main objective is to develop Busan port as a world top class port.

Busan Port Authority anticipates that when the strategic port development plans are smoothly carried out container berth will be expanded from 25 to 52 berths. Container throughput will increase from 11 million TEUs to 22 million TEUs. Ship's service time will decrease from 27 hours to 18 hours due to the increase of port productivity. Tourist

visiting Busan will increase from 1 million people to 3.5 million people. Value added will be created from 3.8 trillion won to 9.4 trillion won by 2020.²⁵

Busan Port Vision for 2020

Short-term plan (2006-2010)	Mid-term plan (2011-2015)	Long-term plan (2016-2020)
Port Infrastructure Development	Value Added Port Development	World Top Class Port Development
<ul style="list-style-type: none"> ● Timely development of Busan New Port ● Timely development of port hinterland road ● Development of international fish trade market at the Gamcheon port ● Waterfront development at Busan north port ● Prevention of air pollution from ship 	<ul style="list-style-type: none"> ● Building ship repair yard and shipbuilding material berth ● Development of marine tourist cluster ● Development of marine land at Busan south port ● Utilizing RFID technology to attract transshipment cargo 	<ul style="list-style-type: none"> ● Development of container rehandling cluster ● Development of international fish distribution cluster ● Development of marine resort island ● Building marine resort park at Gaduck island

Source: Busan Port Authority (2006)

5. Regional Cooperation for Logistics Integration in Pan Yellow Sea Region

5.1 Present logistics networks of Busan port

As Busan is geographically located on the east-west main trunk route and close to China and Japan, the world's dynamic economies, it has a strong position in attracting transshipment cargoes to and from Northern China and Japan. Feeder networks are well established at the port of Busan. On Korea-Japan shipping route total 19 shipping companies with 132 ships are providing services and on Korea-China route 26 shipping companies with 167 ships are providing services.

Feeder Network of Busan Port

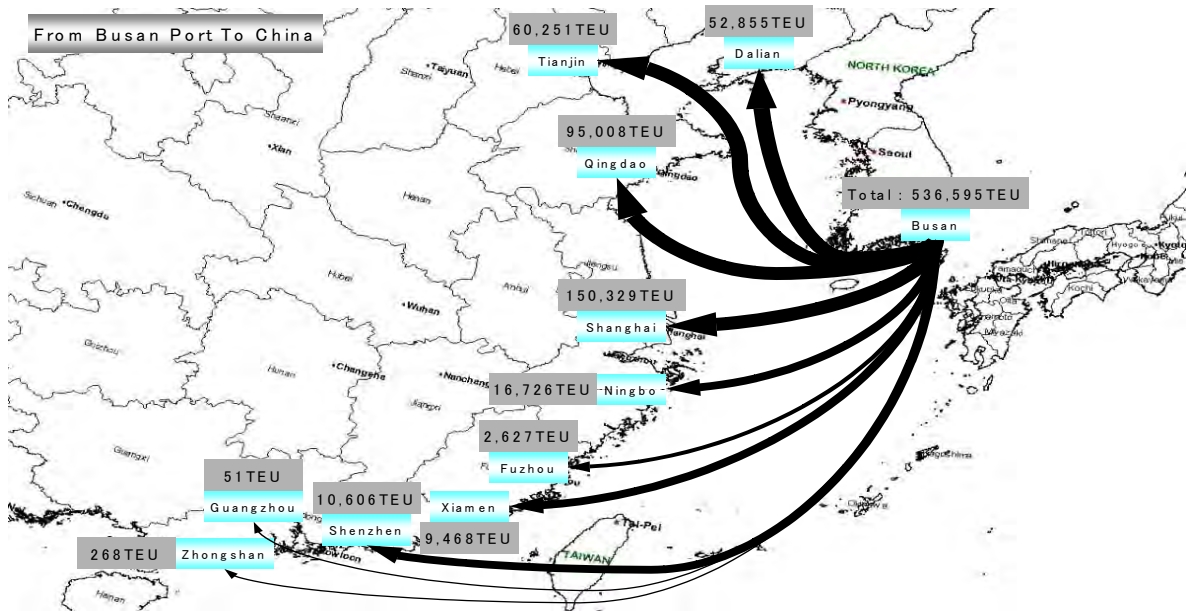
Service Route	Major Shipping Company and Number of Ship Operated
Korea-Japan Route	KMTC, Dongjin, PAN-OCEAN, Sinsung, etc. Total 19 Shipping Companies(132 ships)
Korea-China Route	PAN-OCEAN, Namsung, KMTC, Hanjin, etc. Total 26 Shipping Companies(167 ships)

Source: Busan Metropolitan City (2002)

According to a recent origin and destination (O/D) analysis of container cargoes at the Busan, a total of 536,595 TEUs handled at Busan port was bound for China in 2000. Among them 170,369 TEUs were transshipment cargoes and 67 percent of total cargo volumes was destined for four ports in Northern China such as Shanghai, Qingdao, Tianjin and Dalian. For inbound container cargoes from China Busan port handled a total of 918,880 TEUs consisting of 304,489 TEUs of imported container cargoes and 614,391 TEUs of transshipment cargoes. This proves that a large amount of Chinese container cargoes has been transhipped at the Busan port.

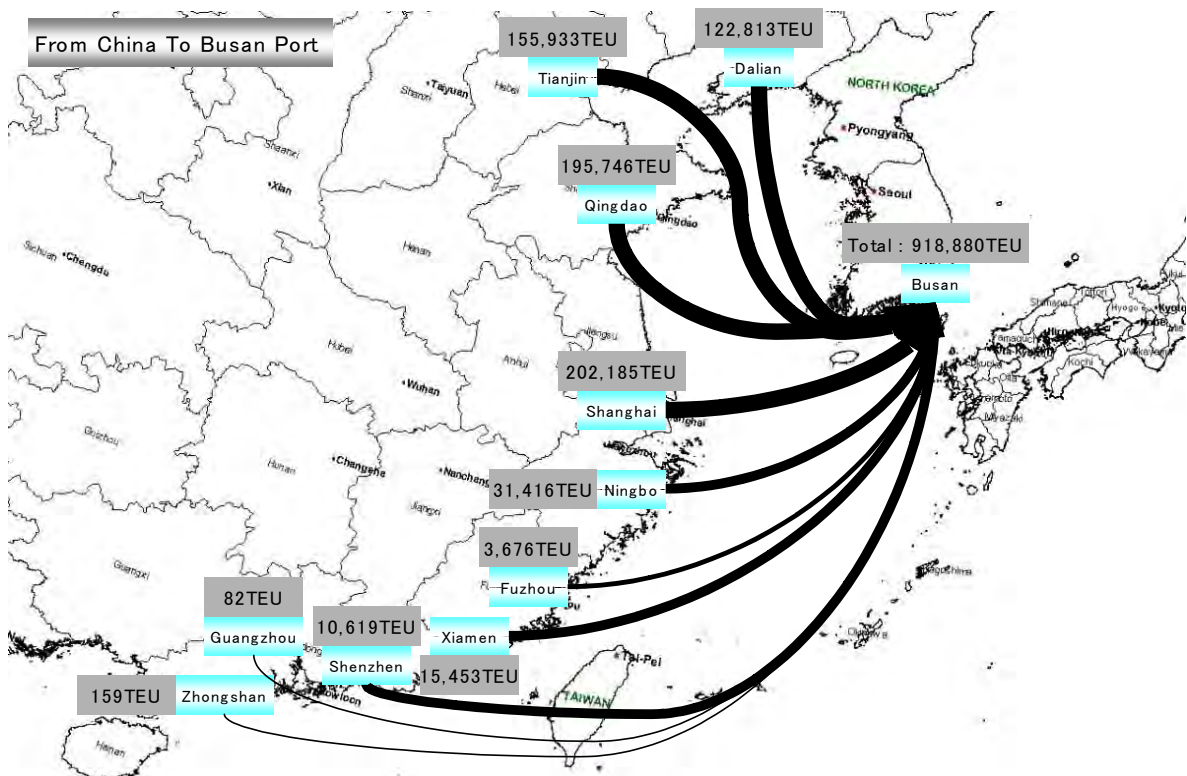
In 2000 a total of 640,114 TEUs handled at the port was bound for Japan. Among them a 45 percent of cargoes was transshipment containers. It was found that the majority of cargoes was transported to Tokyo, Osaka, Hakata, Yokohama, Tomakomai and Nagoya. In the meantime, Busan handled 398,621 TEUs originated in Japan. Transshipment cargoes accounted for almost 36 percent of the total. Major trading partner ports in Japan included Yokohama, Kobe, Osaka, Nagoya, Tokyo and Hakata²⁶.

Container Cargo Traffic Flow from Busan Port to China



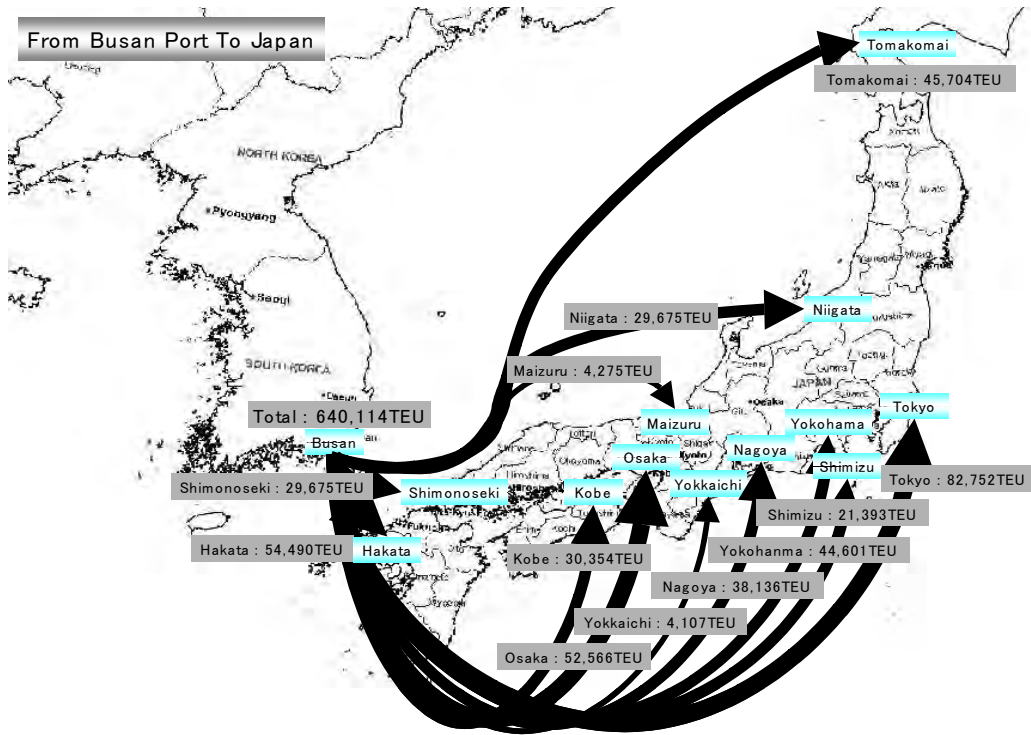
Source: KCTA (2002)

Container Cargo Traffic Flow from China to Busan Port



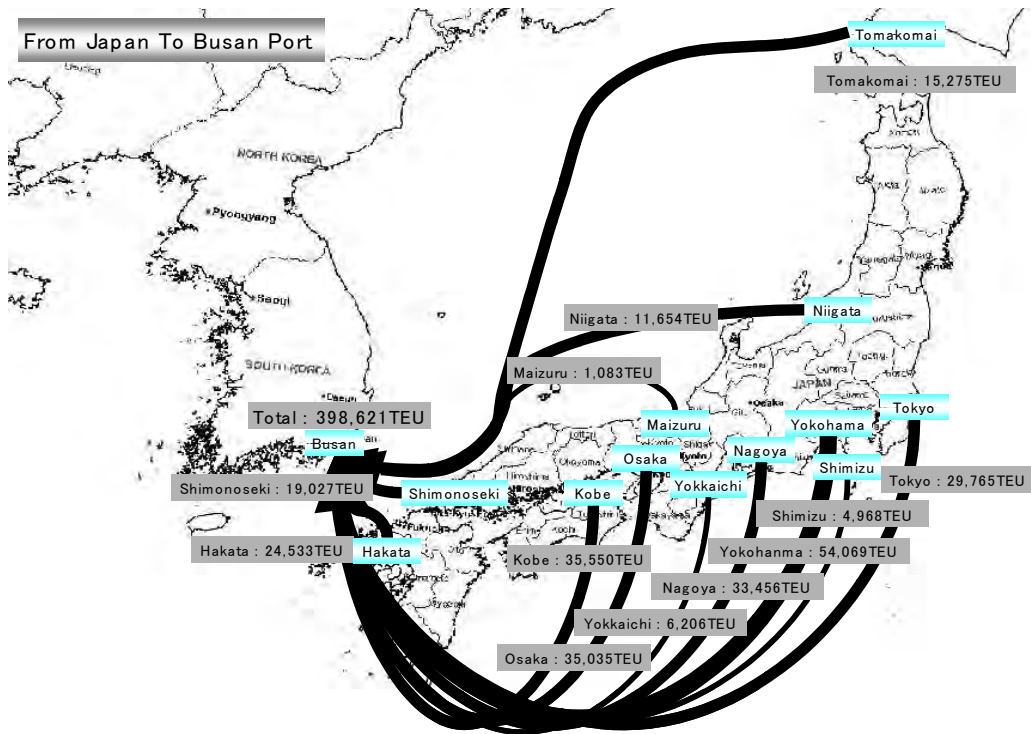
Source: KCTA (2002)

Container Cargo Traffic Flow from Busan Port to Japan



Source: KCTA (2002)

Container Cargo Traffic Flow from Japan to Busan Port



Source: KCTA (2002)

5.2 Logistics barriers in Northeast Asia

Northeast Asia should unite in a common effort to resolve imbalances and inefficiencies in the logistics market and to develop economic cooperation. In international business and trade there are two types of barriers such as tariff barriers and non-tariff barriers. The later ones include institutional, legal, regulatory, technical and physical barriers. It is very crucial to identify these barriers in analyzing the nature of the market in Northeast Asia and in policy-making.

An institutional barrier presents reluctance to respond to new needs among existing players in the market. A legal barrier has many forms such as licensing restrictions and restriction on foreign ownership. In Northeast Asia it is not normally allowed foreign companies to hold licenses to engage in the particular transport and logistics services because of the protection of the consumer and national interests. Another type of legal barrier exists when a certain firm has exclusive franchise rights in providing services. Technical barriers include standards, technical regulations, procedures for assessing conformity, and practices for product certification and testing. The examples of barriers affecting the logistics industry in China, Japan and Korea are diverse. These barriers impede the efficient movement of people, goods and services to sustain the development of regional economy. Countries in Northeast Asia should collaborate to remove the identified barriers.²⁷

Logistics barriers in China

Institutional barriers	<ul style="list-style-type: none"> -Discrimination against foreign carriers -Inefficiency and excessive Bureaucratism -Low level of service in ports, railway, transport and intermodal service -Lack of details in law and regulations
Legal barriers	<ul style="list-style-type: none"> -Monopoly in some logistics business -Lack of transparency and inconsistency of legal system -Over-strick government regulations and procedures -Limitation of service by foreign carriers
Custom barriers	<ul style="list-style-type: none"> -Excessive documents requirements -Complication and prolongation of customs clearance procedure
Physical barriers	<ul style="list-style-type: none"> -Shortage of container handling facilities and equipment -Low level of equipment standardization
Technical barriers	<ul style="list-style-type: none"> -Low level of standardization -Lack of cargo tracing and tracking service -Low level of common information platforms

Source: Jun, I. S. et.al(2005)

Logistics barriers in Japan

Institutional barriers	<ul style="list-style-type: none"> -No work on Sunday and holiday -Extraordinarily high inland transport cost -Lack of inter-agency collaboration
Legal barriers	<ul style="list-style-type: none"> -Under the prior consultation system, carriers serving Japan must consult with JHTA on any operational matters involving Japanese ports labor
Physical barriers	<ul style="list-style-type: none"> -Limitation on 40' and high cubic containers
Technical barriers	<ul style="list-style-type: none"> -High costs and incompatibility of EDI system

Source: Jun, I. S. et.al (2005)

Logistics barriers in Korea

Institutional barriers	-Restrictive bilateral direct container shipping -Lack of inter-agency collaboration
Legal barriers	-Limitation of discharge for T/S and empty container -Burdensome requirements of license and filings
Custom barriers	-Limitation on service by forwarder
Physical barriers	-Lack of standardization of equipment -Low level of EDI usage

Source: Jun, I. S. et.al (2005)

5.3 Regional cooperation for logistics integration in Pan Yellow Sea region

Nowadays regional trade has been growing faster than inter-regional trade because of the declining of international transport costs. And distance has become a less important transport cost factor. Intra-Asian container traffic, for example, is growing faster than global container traffic, and Intra-European or intra-MERCOSUR trade has been increasing at a higher rate than trade between these two regional blocks.

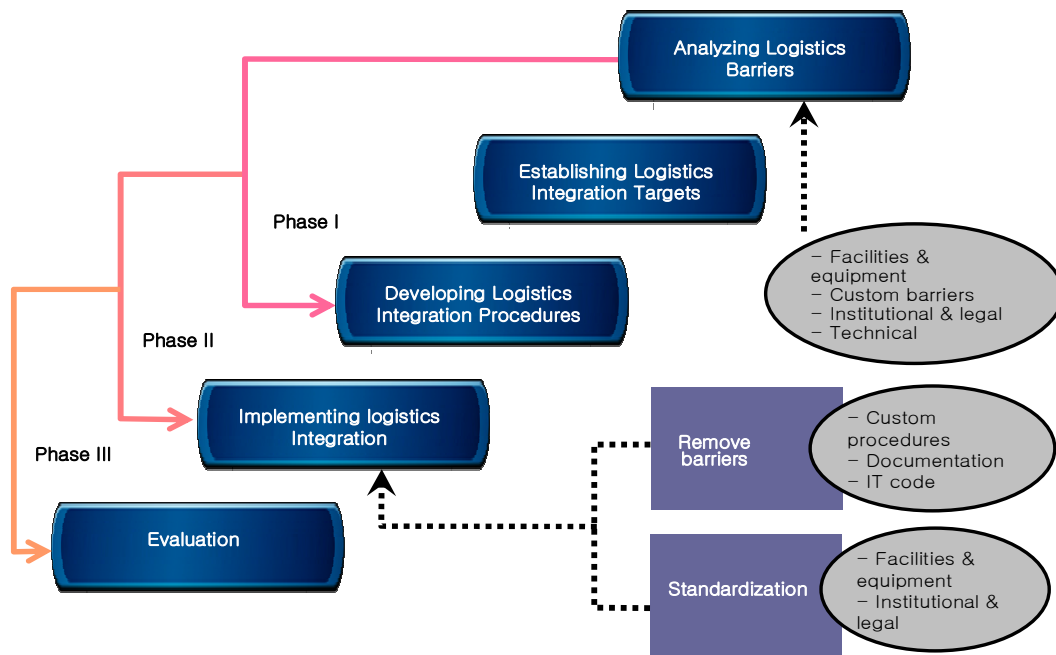
Intra-regional trade has been growing by lower intra-regional tariffs, lower unit transport costs, frequent transport services, and the increase of speed. Also, on a regional level, more transport options such as road, rail, and river may become available due to regional policies and investments, or even common transport markets. All this reduces delivery times, allows for more Just-In-Time delivery, and thus increases the demand for goods and components from neighbouring countries. In other words, more intra-regional trade leads to better and less expensive regional transport services, which in turn again lead to more intra regional trade.²⁸

To enhance and boost regional economic and social progress it is necessary to develop a common logistics integration policy for the free circulation of goods and services between China, Japan and Korea. In maritime and intermodal services the market is more liberalized than air services but non-tariff barriers still exist in these countries. In China foreign companies are discriminated and in Japan the use of facilities and labor in Japanese ports is not favored for foreign companies. Also in Korea there is unfair shipping practices with China on reciprocal routes. The physical or institutional barriers in Northeast Asia can be overcome by instituting an efficient transport governance system or efficient transport and trade facilitation system.²⁹

MOMAF(2006) suggests three phases of logistics integration in Northeast Asia. In the phase one it is important to analyze logistics barriers in terms of physical,

institutional, legal, and technical aspects. And then logistics integration targets should be established together with the development of logistics integration procedures. In phase two the integration procedures should be successfully implemented. In this phase logistics barriers can be removed and if necessary, standardization of equipment, facility, and legal matters can be established. In phase three it is crucial to evaluate constantly whether the logistics integration targets are achieved and successfully implemented.³⁰

Logistics Integration Process in Northeast Asia



Source: MOMAF (2006)

Logistics integration is not an easy task to implement. An integrated logistics market in Northeast Asia is expected to go through a lengthy process because of inherent economic, political and social obstacles. To ensure the successful implementation of logistics integration all levels of relevant parties should participate in the integration process. The establishment of “Korea-Japan-China Joint Logistics Cluster” is necessary and the role of this pan-national interest organization is very important to remove logistics barriers and promote the competitiveness of logistics industries in Northeast Asia. Cluster participants and associated institutions such as private sector, local and national government, education and research institution should interact with one another directly and through their networks.

The participants in the Joint Maritime Cluster should work together to maximize the

potential benefits of the logistics integration while minimizing negative effects of the process on the losing country. Joint research may be useful to identify the benefits and obstacles of logistics integration and winners and losers from the integration, and to study economic impacts of the integration on each country.

6. Summary

In the clustering of countries we have seen that countries are specializing in different maritime businesses, depending on their comparative advantages. For example, China is specializing in container port throughput, Bangladesh in ship scrapping, Indonesia and Philippines in ratings, and Korea in containership building sector.

Most countries' policy makers would attempt to develop their maritime industry. The formation of maritime cluster has become an important strategy to gain competitiveness of their maritime sectors. Maritime cluster has a great impact on local and national economy in terms of production, employment, income and value added generation. It also helps to raise the profile of the maritime industry locally, regionally, nationally and internationally.

With the increase of international trades in Northeast Asia demand for logistics services in the region are increasing. For the free circulation of goods and services between China, Japan and Korea it is necessary to develop a common logistics integration policy. This will enhance economic development in Northeast Asia. Like Denmark-Sweden Joint Maritime Cluster, a pan-national attempt is required to form a joint logistics cluster in Northeast Asia. All levels of governments, institutions and private sectors should participate in the cluster and discuss how to remove barriers of logistics integration, how to gain the mutual benefits of the integration, and how to achieve the competitiveness of logistics industries.

Northeast Asia lags considerably behind other major regions such as North America and the EU in terms of economic integration. Since the late 1990s, however, there has been an increasing interest in economic cooperation among the Northeast Asian countries. In particular, the cooperation of Korea, Japan and China in logistics is essential for creating a truly effective free trade area. The growing interest for a regional logistics integration arises due partly to the recognition that international competition now takes place not only between nations, but also between regional blocs. With competition occurring at the bloc level, an efficient and integrated logistic system is critical owing to its role in improving the competitiveness of the regional logistics industries and future prosperity of the three economies.

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