

The Port Development Strategy of South Korea: To Be a Load Center in Northeast Asia

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INTRODUCTION

In the past, the hinterland of a port or harbor was determined by its geographical location and the port enjoyed a monopolistic position in its business. However this situation has been changed by the advent of containerization and intermodalism. Moreover, as the structure of production and distribution has globalized, a port can now strengthen the economies of neighboring countries as well as its own hinterland. The East Asian region in particular is undergoing a rapid increase of containerized cargo movement concomitant with its remarkable economic growth.

South Korea is in an excellent strategic geo-economic location in Northeast Asia, but it is not able to benefit from it due to insufficient container terminal capacity. This paper focuses on the current status of the South Korean maritime industry, the global trends in container shipping and ports, competition to be the load center in Northeast Asia, and a recent South Korean port development strategy.

CURRENT STATUS OF THE SOUTH KOREAN MARITIME INDUSTRY

The total tonnage of the South Korean fleet grew from 2 million DWT in the early 1970s to about 18 million DWT in 1994, or 2.8% of the world fleet. Three Korean national lines, Hanjin, Hyundai and Choyang, have provided worldwide container shipping service since 1991 and they are now operating a total of 49 container vessels. Hanjin is the seventh largest container shipping company in the world (Table 1).

Because of its open market policy in ocean trading, the ratio of import/export cargo carried by South Korean flag vessels decreased steeply to 26% in 1994 from 45% in 1985 (Table 2). On the contrary, the revenue of South Korean carriers from operations in other than the South Korean trade exceeds that of South Korean import/export trades. This source of the

revenue for three major South Korean container lines is 70% of their total revenue.

Table 1 South Korean Container Fleet

	1992			1993			1994		
	Ships	TEU	Rank	Ships	TEU	Rank	Ships	TEU	Rank
Hanjin	24	53	10	25	59	8	27	71	7
Hyundai	6	16	30	11	40	17	11	40	17
Choyang	9	23	19	10	27	21	11	29	20
Total									
South Korea	39	92	6	46	126	5	49	140	5

Notes: 1. TEU (Twenty Foot Equivalent Units) are in thousands.

2. Rank is among world container shipping companies.

Source: NYK.

Table 2 Ratio of Import/Export Cargo Carried by South Korean Flag Ships

Year	1975	1980	1985	1990	1991	1992	1993	1994
Ratio (%)	27	45	44.5	36	32	29	28	26

Source: Korea Shipowners' Association.

Most South Korean ports are owned and operated by the Central Government, with some exceptions. Busan Container Terminal Operation Corporation and Pusan East Container Terminal are both financed by the Government to operate container terminals. In 1994, each terminal handled 1.42 million and 1.1 million TEUs of containers, respectively. Another 1.21 million TEUs were handled at the general cargo terminal in Pusan which recorded 3.82 million TEUs of container throughput in 1994, making it the fifth port in the world in terms of container movement (Table 3).

Although South Korea has exhibited a dramatic increase in amounts of containers handled, it cannot meet the demand because of lack of capacity. Two container terminals with four berths each are under construction at Pusan and Kwangyang. Existing South Korean ports will be privatized and new ports will be given incentives for construction according to a Build, Transfer, and Operate scheme.

Table 3 Container Throughput of the World's 20 Largest Ports

Rank	Port	Country	1993	1994 ¹	2000 ²	Increase	
						1993-1994	1994-2000
1	Hong Kong	Hong Kong	9,204,236	11,100,000	19,000,000	20.5	71.2
2	Singapore	Singapore	9,050,000	10,400,000	19,000,000	14.9	82.7
3	Kaohsiung	Taiwan	4,635,895	4,899,879*	6,400,000	5.7	30.6
4	Rotterdam	Netherlands	4,161,161	4,500,000	6,000,000	8.1	33.3
5	Pusan	South Korea	3,071,000	3,820,000*	4,700,000	22.1	25.3
6	Kobe	Japan	2,696,083	2,787,000	NA	3.4	3.4
7	Hamburg	Germany	2,486,130	2,725,715*	4,200,000	9.6	54.1
8	Long Beach	United States	2,079,491	2,573,827*	3,500,000	23.8	36.0
9	Los Angeles	United States	2,318,917	2,518,018*	3,100,000	8.6	23.1
10	Yokohama	Japan	2,167,792	2,310,000	2,700,000	6.6	16.9
11	Antwerp	Belgium	1,876,296	2,195,000	2,586,000	17.0	17.8
12	Keelung	Taiwan	1,886,425	2,046,588*	2,280,000	8.5	11.4
13	New York	United States	1,972,692	1,983,084	2,800,000	0.5	41.2
14	Dubai	U.A.E.	1,678,778	1,882,828*	2,700,000	12.2	43.4
15	Felixstowe	United Kingdom	1,638,644	1,746,653*	2,400,000	6.6	37.4
16	San Juan	United States	1,553,420	1,555,000	2,600,000	0.1	67.2
17	Tokyo	Japan	1,123,830	1,510,227	1,789,633	34.4	18.5
18	Bremerhaven	Germany	1,354,852	1,474,293*	2,100,000	8.8	42.4
19	Seattle	United States	1,151,405	1,400,000	1,730,000	21.6	23.6
20	Bangkok	Thailand	1,273,795	1,383,500	2,000,000	8.6	44.6

Notes: 1. Amounts in 1994; * is actual amount; others are estimated.

2. Amounts in 2000 are estimated.

Source: Port Development International (1995).

WORLD TRENDS OF CONTAINER SHIPPING AND PORTS

Table 4 shows that since 1980, world cargo movement has risen only 1.6% annually, while container traffic has increased at an annual rate of 9.6%. If this trend continues, container traffic will nearly double by the year 2010.

Table 4 World Cargo and Container Movement

	Unit	1980	1985	1990	1994	Annual Increase (%)
World cargo	Million tons	3,606	3,293	3,977	4,475	1.6
Container	Million TEUs	37.2	55.9	85.5	133.6	9.6

Source: Fernleys Review, Containerization International Yearbook (1995).

One of the most significant characteristics of recent container shipping is the fierce competition among carriers. To survive this competition, carriers must offer low rates and better service, providing more frequent port calls, more destinations, quicker delivery, and integrated information service. They also have to have larger and faster ships, which are of course very expensive. Some carriers have already ordered 5,600 TEU container ships and others are considering the construction of 6,200 TEU ships. A study of the economics of 8,000 TEU container vessels is being carried out by a German consortium.

There is little doubt that only a large shipping company or a consortium of carriers can provide such services. Many joint operations or consortiums have a fixed-day service. But twice-a-week service is on the horizon and competition will become even more severe. Eventually, there will be a demand for daily service. But no one carrier would be able to provide this service. The result will be four or five mega-carriers using very large container ships. Such very large container ships may reduce the unit transportation cost, but frequent port calls will cause many problems in stowage and terminal operations. Clearly these very large container ships will only be able to visit a few well-equipped and strategically located load centers to save port time and cost. Containers destined for neighboring countries will then be transhipped by feeders. Thus only a small number of mega-hub ports will be required as load centers.

Reflecting the booming manufacturing industries, container cargo traffic in Asia has risen faster than the world average. Indeed, approximately 50% of world container cargo will be generated from the Asian region by the year 2000 (Table 5).

Table 5 Growth of Container Traffic in Asia (in thousand TEUs, %)

	Actual				Projected	
	1985	1990	1994	Annual Increase (1984-94)	2000	Annual Increase (1994-2000)
Asia	16,659 (29.8)	32,031 (37.4)	51,164 (40.3)	13.5	104,037 (47.7)	12.2
World	55,900	88,500	129,339	9.8	218,107	9.1
Total	(100.0)	(100.0)	(100.0)		(100.0)	

Source: Korea Maritime Institute.

COMPETITION TO BE A LOAD CENTER FOR NORTHEAST ASIA

The economies of Northeast Asia are making great strides. China's development center extends from its southern coast to Shanghai and includes part of the Yellow Sea rim. Russia is also planning to develop its Far East. However, there is no hub port at present in Northeast Asia. The ratio of transshipment cargo at a port is used as a measurement of port centrality. Hong Kong, Singapore and Kaohsiung have ratios ranging from 40 to 70% and are considered hub ports in Southeast Asia. In Northeast Asia, Kobe port once approached this status, but it lost a large portion of its capacity due to the 1995 earthquake. Although the transshipment ratio of Pusan reached 18.5% in 1995, up from 5.2% in 1991, because of an increase of transshipment cargo mainly from north China, it is still not a hub port for this region (Tables 6 and 7).

Cargos from south China are transshipped at Hong Kong and Kaohsiung. But the development of a large scale container terminal in north China would not be more advantageous than Pusan or Kwangyang port in South Korea because north China is too far from the main trunk route and has shallower water (Table 8).

Further, transportation costs from western Japan to Pusan are cheaper than that of Yokohama or Kobe. This means Pusan would be a very competitive transshipment port for the western Japan region. For example, a route via Pusan through the Tsugaru Strait saves 90 nautical miles compared to the route via Kobe to North America (Table 9). And there is a strong possibility that the trans-Korea railroad will be rebuilt to connect north China to Pusan and Kwangyang port. Thus Pusan would have many geographical advantages as a load center for the region.

Table 6 Transshipment Movement in South Korea (in thousand TEUs, %)

	1990	1991	1992	1993	1994	1995
Throughput (Increase)	2,544 (3.8)	2,707 (6.8)	2,876 (6.1)	3,204 (14.4)	4,035 (25.9)	4,628 (14.7)
Import/Export	2,393	2,567	2,720	2,941	3,441	3,772
Transshipment (Ratio)	150 (5.9)	140 (5.2)	155 (5.4)	263 (8.2)	594 (14.7)	856 (18.5)

Source: Korea Maritime Institute.

Table 7 Container Traffic between South Korea and China, 1991-1994 (in thousand TEUs, %)

	1991	1992	1993	1994
Total	83 (48.3)	128 (54.2)	224 (74.5)	401 (79.0)
Export/Import	78	109 (37.7)	166 (52.3)	236 (42.1)
Transshipment	5	19 (280.0)	58 (205.2)	165 (184.4)
Transshipment Ratio	6.0	14.8	25.9	41.1

Source: Korea Maritime Institute.

Table 8 Deviation from Main Trunk Route from North China Ports

Port	Conditions for Port Development	Distance from Main Trunk Route	
		Distance (miles)	Additional Time
Shanghai	Poor	186	9
Tianjin	Poor	1,044	45
Dalian	Good	679	32

Source: Korea Maritime Institute.

Table 9 Asia-North America Route

Route	Route Length (nautical miles)
Kaohsiung-Pusan-Los Angeles	6,160
Kaohsiung-Kobe-Los Angeles	6,250
Kaohsiung-Pusan-Kobe-Los Angeles	6,396

Source: Korea Maritime Institute.

PORT DEVELOPMENT STRATEGY OF SOUTH KOREA

The port development strategy of South Korea with regard to becoming a load center for Northeast Asia should be implemented in phases as follows.

- Phase 1: Development of a large scale container terminal and establishment of a container feeder system including a South-North Korean route

Phase 2: Reconstruction of the trans-Korea railroad (TKR)

Phase 3: Establishment of an integrated transportation network with Northeast China

Phase 4: Connecting the TKR with intercontinental railways.

South Korea has only two container terminals with seven berths with two container terminals under construction in Pusan port and Kwangyang bay respectively. The lack of capacity forced the Government to advance the completion of these container terminals to late 1997. In Kwangyang, an additional six-berth container terminal is planned by 2006 and a further 20 berths by 2011. However, even with these new berths, Pusan and Kwangyang are still not sufficient to meet future demand, and will fail to become load centers in Northeast Asia. Thus the Government decided to build a new container terminal at Kadok island, adjacent to Pusan. The total cost for constructing the Kadok container terminal is estimated at 4 billion dollars, exceeding by several times the government budget for port construction in 1995. Thus the project may be delayed if it is to be financed solely by the Government. Timing is the most important factor for this project. If sufficient capacity is not available in time, another port in another country may become the regional hub instead of Pusan. Thus private sector financing is critical. If the private sector financier, developer and operator is chosen by the end of 1996, construction work will begin in 1997, and the first phase of the ten berths will be completed in 2002.

CONCLUSION

Larger and faster vessels are being employed on main trunk routes and eventually will visit only strategically located and well-equipped mega-hub ports. To have a hub port is essential to the economy of a country in the era of globalization. Since South Korea is located at the center of Northeast Asia, which harbors the fastest growing economies in the world, Pusan may become a load center if proper terminal facilities are provided in time. The South Korean government realizes the urgency of the situation and has begun to develop container terminals in Pusan and Kwangyang, and has plans to develop a new container terminal at Kadok island near Pusan. However, the Government does not have the funds for all this port development. It must therefore be financed by the private sector. If all projects are successfully completed in time, South Korea will become a load center in Northeast Asia.

Development of Infrastructure as a Top Priority of Regional Cooperation in Northeast Asia

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Recently, Northeast Asian nations have been confronted with the task of developing and utilizing the most effective way of cooperatively harnessing the economic potential of the region. The Northeast Asian region encompasses a vast area abundant in natural resources and economic endowments and including cheap but high quality labor. Yet the degree of economic cooperation in Northeast Asia is one of the lowest in the world due to the impact of the East-West Cold War in the wake of the Second World War. For this reason, the abundant potential in the region has not been effectively tapped. Today, however, the Cold War is gone and it is all the more necessary now than ever before for Northeast Asian countries to enhance their cooperation and interchange for their common interests. Strengthened intra-regional cooperation and exchange will make a tangible contribution to the enhancement of Northeast Asia's counterbalancing role and bargaining power in a world of economic regionalization and consequent emerging protectionism. The key to sustained rapid growth in Northeast Asia is the pooling of efforts to fully harness the resources of the region and to give full play to the compound effect of comparative advantages.

Beginning in the early 1990s, debates and brisk activities centered on the developed of the Tumen River area were conducted to intensify regional cooperation among Northeast Asian economies. In December 1995, in New York, the Agreement on the Establishment of the Consultative Commission for the Development of the Tumen River Economic Development Area and Northeast Asia, the Agreement on the Establishment of the Tumen River Area Development Coordination Committee and the Memorandum of Understanding on Environmental Principles Governing the Tumen River Economic Development Area and Northeast Asia were signed between Northeast Asian countries under the patronage of UNDP. These agreements have laid a firm foundation for furtherance of regional cooperation at an intergovernmental level. Today, the task is to establish those organizations and speed up regional development. With the help of such organizations, Northeast Asian countries can bypass competition and

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