

A Study on the Activation Plan of Busan Port

(Focused on northeast feeder network service cost, From LA to China and Japan)

*Yu-Nam Han¹, Mi-Sun Yoon², Dal-Won Kang³, Hyun Kim⁴, Kyu-Seok Kwak⁵, Ki-Chan Nam⁶

¹Northeast Asia Logistics Management, Korea Maritime Univ.(E-mail: h6040@paran.com)

²Northeast Asia Logistics Management, Korea Maritime Univ.(E-mail : kkaenangza@hanmail.net)

³Northeast Asia Logistics Management, Korea Maritime Univ.(E-mail: gopy77@hanmail.net)

⁴School of Port Logistics, TongMyong Univ.(E-mail: hatty@nate.com)

⁵Department of Logistics System Engineering, Korea Maritime Univ.(E-mail: kskwak@hhu.ac.kr)

⁶Department of Logistics System Engineering, Korea Maritime Univ.(E-mail: namchan@hhu.ac.kr)

Abstract

The purpose of this research is to suggest the activation plan of Busan port. In the past years, Busan port enjoyed the golden days because of the China's rapid economic growth. But China's continuous development of ports, the trend of increasing container ship size and increasing direct call to China are coming threats to Busan port. So Korea needs to revise the 'Northeast Logistics Hub' strategy because it is considered that Korea ports continuously will handle China's transshipment cargoes. But now China's transshipment cargo share has decreased by direct call to China ports.

It means that China has a lot of its local cargoes, so many ship companies change liner service route to handle China cargoes except Bussan ports although Busan port is included in the main trunk route.

In the future, Bussan port will not be able to compete again about throughput with China ports if Busan port's transshipment cargo share decreases. So we must find out and develop Busan port's strength which is the competitive edge. By good luck, Busan port has a few opportunities such as the developed feeder network service and geographical advantages. Busan port has many feeder network service like spider's web in any northeast countries so we can suggest that if Japanese shippers use Busan port to distribute their cargoes to Japanese local areas, its transport costs are cheaper than when they use Japan's main ports.

In this paper analyzed side of cost when they use Bussan port like hub to distribute their cargo to their local areas. Because most companies tried to reduce the total cost about logistics.

Finally, this paper suggests when northeast shippers(China, Japan) use Bussan port which is more economical than their local main ports.

Keywords: Busan, Feeder, Hub, Japan, China, Northeast

1. Introduction

Globalization, the economic growth of China and the changes of domestic industry structure have an effect on domestic port logistics industry significantly. A number of domestic manufacturers establish producing centers abroad because of the globalization and the changes of domestic industry. As a result, domestic cargo volume is reduced. Also, the export of LCD and expensive equipment are transported by air. Therefore, it is unavoidable for ports to compete with airports although ports have taken charge of most of the domestic export cargo volume.

Moreover, Northeast Asia makes an effort to expand the port's equipment as well as investment. The fierce competition among ports is being caused finally to be a hub port.

Busan Port is located favorably in a main trunk route compared with other ports in Northeast Asia. Although Busan Port has a large advantage on the basis of location, it is difficult to survive in fierce competition among ports. The activation of Busan Port is considered as the most important factor to survive in the competition. This study focuses on the comparison of freight of direct calls and intermediary service via Busan Port because Busan Port is so costly advantageous for the ocean freight from LA that the intermediary service is expected to be one of the plans to revitalize Busan Port.

2. Circumstantial changes of China and Japan

Global SCM has become influential since global enterprises grew up and FDI increased. According to these trends, the port logistics industry, a main factor of global SCM, is being newly reorganized around the world.

2.1 Circumstantial changes of China

Since China appeared on the stage of world economy, China has made the remarkable economic growth and increase of cargo volume. The China Effect which is influential around the world changes port logistics industry. The investment of global enterprises and shipping industries are being stimulated on the other hand the port logistics industry was not prepared in advance as compared with economic growth in China. As a result, the port logistics industries in surrounding countries have derived benefit continuously from China Effect for a few years. However, it is possible that the recent plans for port development such as the expansion of facilities and extension work make China Effect get finished.

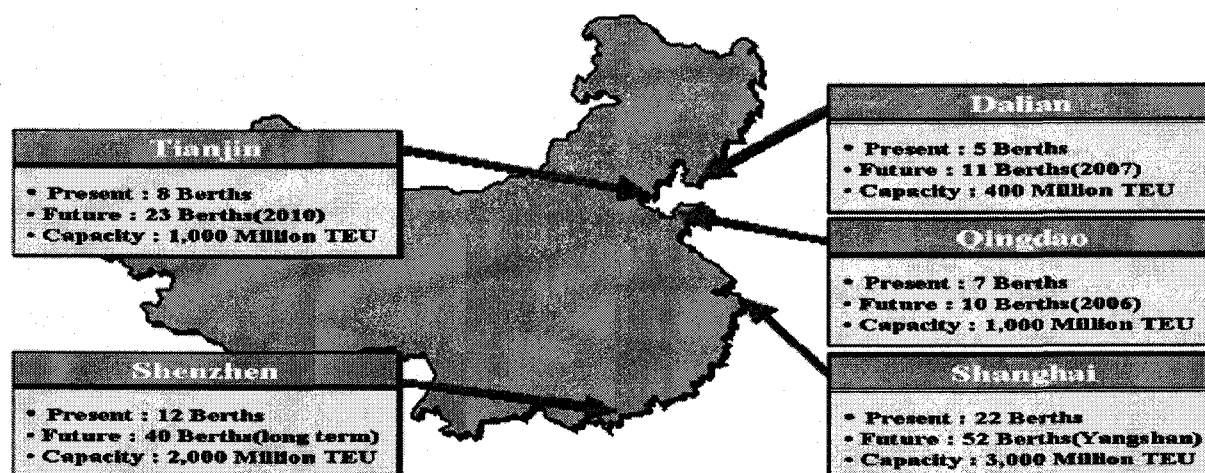


Figure 1. Plans for container terminal development of major ports in China

Table 1. Container throughput of major ports in China

unit : TEU, %

Rank	Port	2004	2003	2002	Annual rate of increase (%)	
					'02-'04	'03-'04
	Total	51,260	39,977	30,306	30.1	28.2
1	Sanghai	14,557	11,283	8,610	30.0	29.0
2	Shenzhen	13,650	10,615	7,614	33.9	28.6
3	Qingdao	5,140	4,239	3,410	22.8	21.2
4	Ningbo	4,006	2,772	1,860	46.7	44.5
5	Tianjin	3,814	3,015	2,410	25.8	26.5
6	Xiamen	2,872	2,331	1,750	28.1	23.2
7	Guanzhou	3,308	2,762	2,180	23.2	19.8
8	Dalian	2,210	1,630	1,352	27.9	35.6
9	Zhongsan	1,004	750	640	25.2	33.9

10	Fuzhou	700	580	480	20.8	20.7
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Source: CONTAINERISATION INTERNATIONAL, March ,2005, Internet

The opening of Yangshan in China is expected to reduce the congestion. Also, cargoes are handled domestically in China but not transshipped in Korea or Japan. As a result, China aims to improve logistics service by reducing lead time as well as the logistics cost. Northern China also increases direct calls by expanding facilities. It is possible for Busan Port to lose the existing transshipment from northern China because the share of transshipment for northern China is above 40% (figure 2). Yangshan and northern China are being developed and opened to gather distributed cargoes. China is occupying advantages to become a hub port in Northeast Asia at the same time.

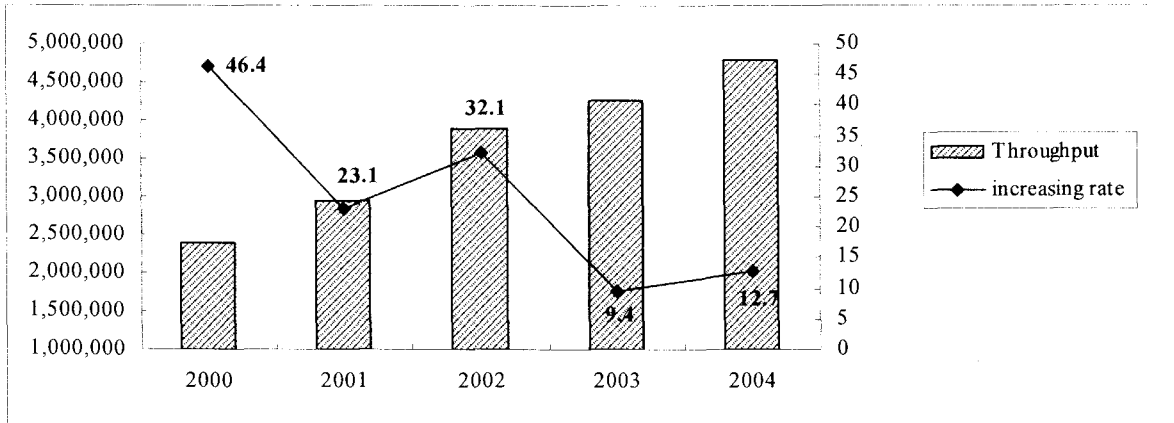


Figure 2. Throughput and a rate of increase of transshipment in Busan Port

The direct calls of shipping lines in China have an effect on activation of Chinese ports so China is expected to play an important role as a hub port. In particular, the increase of direct calls in surroundings of northern China which are far away from major routes gives Busan Port more threats than other factors. The competition between Busan Port and Chinese ports will be more serious problems according to the project for development of Bo Hai in China.

Table 2. Major shipping lines' additional direct calls

Year	Shipping lines	Routes
2000	COSCO	US
	COSCO	EU
2001	OOCL	Mid. East
2002	CMA	US
	CMA	EU
	Wan Hai	Mid. East
2003	Maersk	EU
	Grand Alliance(loop C)	EU
	CSL	Mediterranean

Source: The strategies to attract global logistics companies, the Ministry of Maritime Affairs and Fisheries, October 2003.

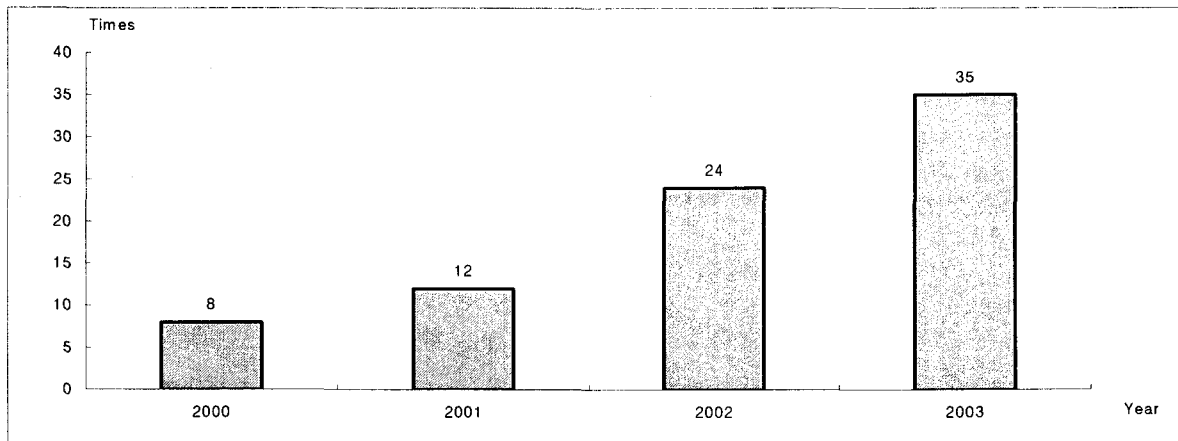


Figure 3. Average monthly frequency of direct calls in Dalian Port

The frequency of direct calls had been increased substantially up to 66%, on the annual average, for three years (2001~2004). It implies the increase of port competition and the slowdown of an increasing rate concerning transshipment of northern China in Busan Port.

2.2 Circumstantial changes of Japan

There are 1,088 ports in Japan. The rate of increase of total imports and exports has been decreasing since 1995. Japanese major ports had been included in ranking top 10 ports around the world in 1980s. However those major ports are included in ranking top 20-40 ports because of the decrease of increasing rate and the earthquake of Kobe in 1995. To cope with this situation, the project for development of super hub ports was established by Japanese government in 2003. It plans to revitalize and reach for a hub port in Northeast Asia. Although the government makes an effort to improve logistics system continuously, the logistics cost is increasing steadily due to structural limits. Warehousing cost and transportation cost are increasing due to diversification of imports, the increasing demand of distribution centers and so on. Furthermore, most of the imports are concentrated on eastern Japanese ports so logistics system is inefficient.

Table 3. Northeast ports ranking of major container terminals

Unit : 1,000 TEU

1980			1990			2005		
Rank	Port	Throughput	Rank	Port	Throughput	Rank	Port	Throughput
1	New York/New Jersey	1,947	1	Singapore	5,223	1	Singapore	23,200
2	Rotterdam	1,901	2	Hong Kong	5,101	2	Hong Kong	22,600
3	Hong Kong	1,465	3	Rotterdam	3,666	3	Shanghai	18,084
4	Kobe	1,456	4	Kaoshiung	3,495	4	Shenzen	16,190
5	Kaoshiung	979	5	Kobe	2,596	5	Busan	11,840
6	Singapore	917	6	Busan	2,348	6	Kaoshiung	9,471
7	San Juan	852	7	L.A	2,116	7	Rotterdam	9,300
8	Long Beach	525	8	Hamburg	1,967	8	Hamburg	8,100
9	Hamburg	783	9	New York/New Jersey	1,898	9	Dubai	7,620
10	Oakland	782	10	Keelung	1,807	10	L.A	7,484
12	Yokohama	722	11	Yokohama	1,648	11	Long Beach	6,775
15	Keelung	660	12	Long Beach	1,598	13	Qingdao	6,268
16	Busan	634	13	Tokyo	1,555	15	Ningbo	5,149
18	Tokyo	632	43	Shanghai	456	17	Tianjin	4,817

Source: Containerization International Year book, each year

Japan is highly interested in hinterland of Busan as well as Busan Port to solve their problems. According to the applications for entering in hinterland of Busan New Port, it shows that the needs of enterprises to utilize

Busan Port are increasing for efficient logistics system.

3. Present feeder service

Busan Port has dozens of feeder service networks connecting western Japan or northern China. In particular, there are 53 feeder service from Busan Port to Japanese ports(Figure 4). The feeder service through Busan Port can reduce logistics cost because the short sea shipping and inland transportation are expensive in Japan.

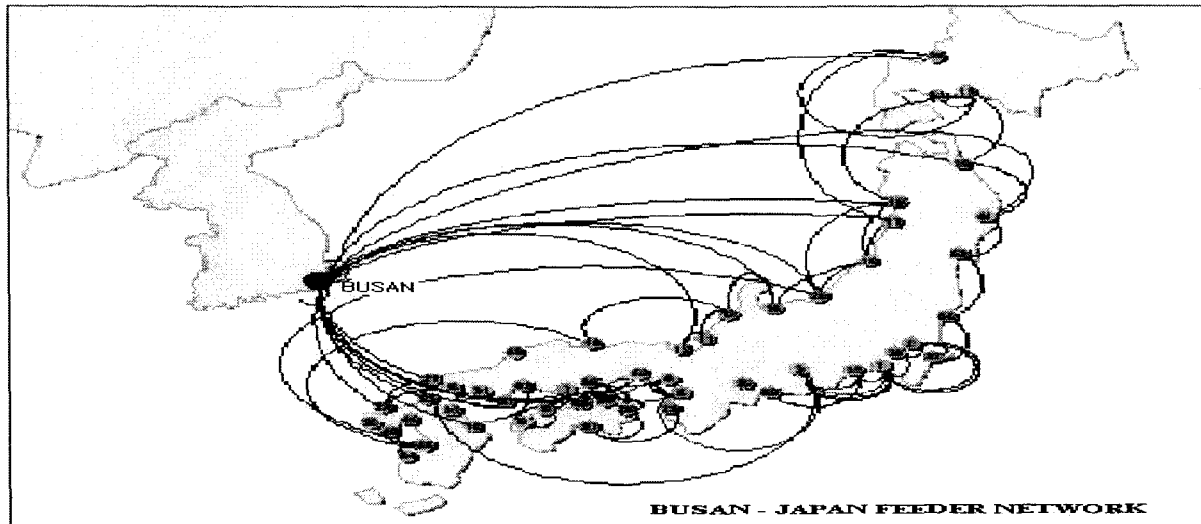


Figure 4. Feeder service between Korea and Japan

Northern China is off from the main routes so the regular service of maritime transportation is unstable and the routes connecting ports are insufficient. Therefore it is necessary for northern China to transship cargoes through another country or another port such as Shanghai. In case Busan Port is used, it is expected to solve the problems what northern China is facing because Busan Port has sufficient routes for intercontinental connection. Qingdao has 43 frequencies per a week for North-East route on the other hand Busan Port has 143 frequencies per a week. Busan Port has more 3 times of frequencies of Qingdao. Therefore Busan Port provides more advantages than Qingdao to shippers using North American route. <Table 4>

Table 4. Comparison of Busan, Qindao and Tokyo

Section		Major ports of Northeast Asia		
		Qingdao	Busan	Tokyo
Distance from a major route (Km)		26	7	60
Distance from Shanghai port (mile)		323	483	1,062
Throughput (1,000 TEU)		6,268	11,840	3,700
Inter-continental routes	North American route (3 routes, frequencies per a week)	43	143	108
	European route (3 routes, frequencies per a week)	62	106	88
	Asian route (3 routes, frequencies per a week)	145	514	247

Source: The strategies to attract global logistics companies, the Ministry of Maritime Affairs and Fisheries, October 2003.

Dalian and Tianjin, other ports in northern China, are also off from the main routes. If a ship on the basis of 5,000 TEU sails at 22 knots speeds to be in the two regions according to Far East-North America route, the net voyage days are 2 or 3 days longer. Liners provide the weekly service so it is disadvantageous for northern China. Unless northern China has an increase of throughput, Busan Port is competitive because of geographical

superiority and enough service to connect ports.

4. The present situation of the freight from USA to China and Japan via Busan Port

Table 5. The throughput from USA to China and Japan via Busan Port

Unit: TEU

Year	Japan	China
2003	67,786	115,402
2004	78,477	124,492
2005	93,609	158,853

Source: KOREA CUSTOMS SERVICE, "Imports and Exports Logistics statistics", 2005

The annual average of throughput from USA to China and Japan via Busan Port for three years (2003~2005) is 132,956TEU and 79,957TEU in China and Japan. Each throughput accounts for about 10% of total transshipment from Busan to China and 10.1% of total transshipment from Busan to Japan. It shows that direct calls are more than indirect calls via Busan Port. However, the amount of throughput is increasing steadily so it explains that using Busan Port of shippers is increasing as well. It is expected that there are more opportunities to revitalize Busan Port.

Table 6. The weight of imports from China and Japan(2003)

Unit: million USD

CHINA			JAPAN		
1	Japan	74,151	1	China	75,193
2	Korea	43,135	2	U.S.A	58,650
3	U.S.A	33,939	3	Korea	17,841
4	Germany	24,341	4	Indonesia	16,358
5	Hong Kong	11,119	5	Australia	14,989
6	Others	236,151	6	Others	198,489

Source: Korea International Trade Association/JERO ADB "Key Indicators", 2004

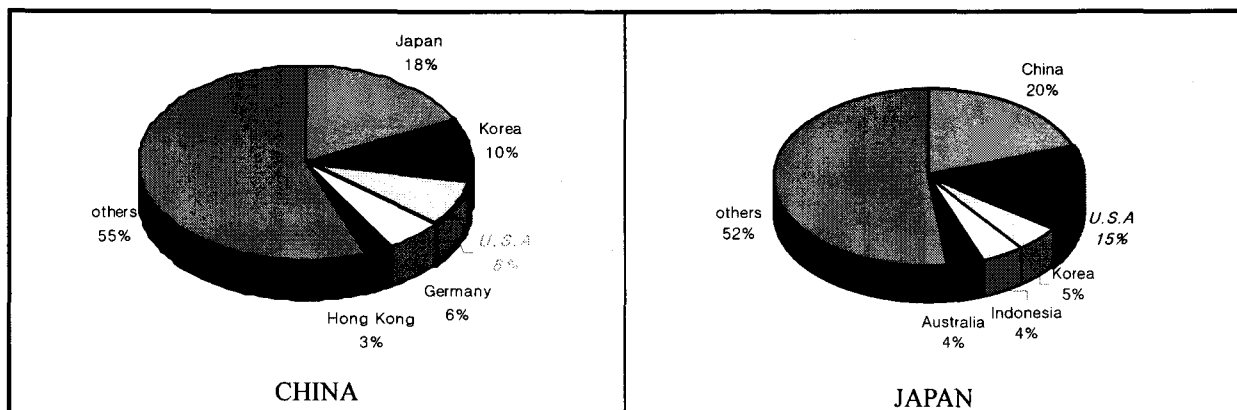


Figure 5. . The Percent of imports from China and Japan(2003)

Except Northeast Asia, USA is the number one importer for both China and Japan so a number of trades are being conducted. However, the amount of throughput via Busan Port is about 10% so it is needed to attract more freight. According to Port of LA in 2004, 88.2% of the total freight in USA is traded between LA Port and Far-East Asia (Korea, China and Japan). China and Japan recorded 68.8 billion dollars and 24.1 billion dollars to export to LA. Especially, USA imports as much as 120 billion dollars from China so LA Port handles about 70% of total exports. Busan Port is qualified for an intermediate port because it has competitiveness from the side of cost. Recently, shipping companies add fleets between Far East and North America due to the increased trades. Also, the direct calls between USA and China are increased so it is not easy to attract freight via Busan Port. However, it is unavoidable for Busan Port to attract transshipment cargoes from Japan as well as China by providing cost advantages and it is able to revitalize Busan Port.

5. Comparison of freight on imports from LA to Korea, China and Japan

5.1 Freight on imports from LA to China and Japan

BAF is 472\$/20' and 590\$/40' at present, August 2006, due to high oil price. FAK(Free All Kind) is applied. Table 7 shows the freight on direct calls from LA to Japan and China(Qingdao, Dalian and Tianjin).

Table 7. Freight on direct calls from LA to China and Japan

unit : USD

LA	Section	Qingdao		Dalian, Tianjin		Keihin		Hanshin	
	Export	TEU	FEU	TEU	FEU	TEU	FEU	TEU	FEU
		1,352	1,640	1,592	1,940	1,352	1,640	1,352	1,640

Source: data from P shipping company

5.2 Freight on imports from LA to China and Japan via Busan Port

Japan is divided into two regions, Keihin and Hanshin, by feeder service of Busan Port. Keihin includes Nagoya, Tokyo and Yokohama. Kobe and Osaka are included in Hanshin. BAF between Korea and Japan is 75\$/20' and 150\$/40'. FAK(Free All Kind) is also applied. Table 8 shows the freight on feeder service between Korea and Japan.

Table 8. Freight on feeder service between Korea and Japan

unit : USD

Busan	Section	Keihin Region (Nagoya, Tokyo, Yokohama, Akita, Chiba, Nagoya, Shimizu, Sakata etc)		Hanshin Region (Kobe, Osaka, Fukuyama, Kanazawa, Mizushima, Tokushima, Hiroshima etc)	
	Export	TEU	FEU	TEU	FEU
		404	728	354	648

Source: the official announcement service concerning maritime charge. <http://www.logispia.net>

Table 9 shows the freight on feeder service between Korea and northern China (Qingdao, Dalian and Tianjin). BAF is 50\$/20' and 100\$/40' and FAK(Free All Kind) is applied.

Table 9. Freight on feeder service between Korea and China

unit : USD

Busan	Section	Qingdao		Dalian		Tianjin	
	Export	TEU	FEU	TEU	FEU	TEU	FEU
		281	497	336	607	336	607

Source: the official announcement service concerning maritime charge, <http://www.logispia.net>

Table 10 shows the freight on direct calls from LA to Busan Port. FAK(Free All Kind) is applied and BAF is 472\$/20' and 590\$/40'.

Table10. Freight on direct calls from LA to Busan Port

unit : USD

LA	Section	Busan	
	Export	TEU	FEU
		873	1,127

Source: data from P shipping company

5.3 Comparison of freight between direct calls and passing through Busan Port from LA to China and Japan

China(Qingdao, Dalian and Tianjin) can reduce transportation cost up to 16\$~383\$ when imports are transported via Busan Port. Japan also can reduce transportation cost up to 75\$~125\$ except for FEU-sized containers.

Table 11. Freight between direct calls and passing through Busan

unit : USD

Section	Qingdao		Dalian, Tianjin		Keihin		Hanshin	
Size of container	TEU	FEU	TEU	FEU	TEU	FEU	TEU	FEU
Cost of direct call	1,352	1,640	1,592	1,940	1,352	1,640	1,352	1,640
Cost via Busan Port	1,154	1,624	1,209	1,734	1,277	1,855	1,227	1,775
Cost difference	198	16	383	206	75	-215	125	-135

Cargoes are concentrated on eastern area (Tokyo, Osaka and Kobe) of Japan so the cargoes for western area require high cost of inland transportation. It is suggested for western Japan to utilize Busan Port as a hub port to reduce logistics cost. Figure 6 shows the reduced logistics cost when Busan Port is utilized as a hub port. In the case of Akita in western Japan, it is 728 km from Tokyo Port in a straight line so inland transportation cost is expensive. If Busan Port is utilized, transportation cost is reduced significantly because feeder service is much cheaper than inland transportation cost. If the urgency of freights is not important, the transportation service via Busan Port can reduce logistics cost.

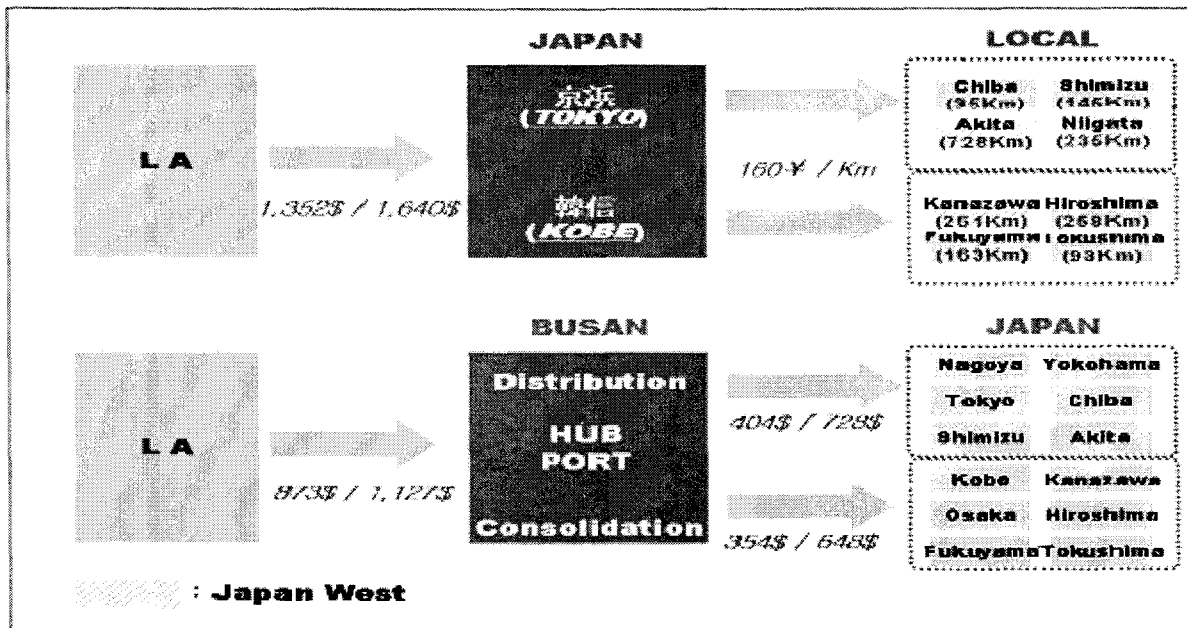


Figure 6. Reduced logistics cost when Busan Port is utilized as a hub port

6. Conclusions

Korea, China and Japan influence each other geographically and economically. It is advantageous for Northeast Asian countries to work out win-win strategies for common prosperity in the future. The feeder service, one of the strategies, is focused because it is superior to Busan Port.

To revitalize Busan Port, Port sales, targeting shippers and shipping companies, and improved service are needed to satisfy customers.

First, Busan Port Authority (BPA) needs to organize regular meetings for shippers and shipping companies to improve the relationship with customers. The customers' opinions from the meetings are so valuable that BPA has to reflect them positively. In fact, there was a meeting for shippers and shipping companies in Singapore and it is useful for benchmarking.

Second, On-dock system between a shipping company and a terminal has to be provided for shippers as well to attract major shippers. It is helpful to guarantee the range of CY for major shippers who have a lot of freight. Shippers can get designated CY and On-dock system can improve the work efficiency in a terminal. For smooth operation of CY, however, it is also important to charge for storage with regard to the cargoes which are stored over a week.

Third, the specified fare concerning transshipment is required. Providing Free Time for transshipment and a discriminative fare according to term can be under consideration. Since a shipper can reduce cost and a terminal can improve turnover, it is advantageous for terminals as well as shippers.

Table 11. An example of the specified fare concerning transshipment

Unit : %

Sector	24H	48H	72H
Rate of the specified fare	20%	10%	5%

Forth, one of the most difficult troubles of feeder companies is that there is no private terminal. To solve the problem, domestic terminal operators need to promote marketing and provide service such as private terminals. When a feeder company uses a private terminal which is better than a conventional terminal, it is expected to improve turnover of ships.

Fifth, incentives to reduce tariff are expected to save expenses of feeder companies.

Last but not least, it is needed to enter into partnership between private container terminals of Busan Port and the specific region institute for shippers. Therefore, it is possible for terminals to attract customers in China or Japan as well as existing customers. Also, small and medium shippers can receive improved service through the institute. The partnership can be stronger when terminals provide discriminated service for shippers. When

these plans are realized steadily, Busan Port can be revitalized.

This study focused on the comparison of maritime freight. For the details, the cost of time value and the comparison of each cargo's freight have to be added. Finally, the activities for constructive marketing are requested after analyzing the costly and timely advantageous cargoes when they go via Busan Port.

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