

World Maritime University

The Maritime Commons: Digital Repository of the World Maritime University

World Maritime University Dissertations

Dissertations

10-1995

A study on the strategic plan for the Port of Busan in prospect of its role as a commercial hub port in the Far East

Young-II Hahn

Follow this and additional works at: https://commons.wmu.se/all_dissertations

Recommended Citation

Hahn, Young-II, "A study on the strategic plan for the Port of Busan in prospect of its role as a commercial hub port in the Far East" (1995). *World Maritime University Dissertations*. 1338.
https://commons.wmu.se/all_dissertations/1338

This Dissertation is brought to you courtesy of Maritime Commons. Open Access items may be downloaded for non-commercial, fair use academic purposes. No items may be hosted on another server or web site without express written permission from the World Maritime University. For more information, please contact library@wmu.se.

WORLD MARITIME UNIVERSITY
Malmö, Sweden

**A STUDY ON THE STRATEGIC PLAN
FOR THE PORT OF BUSAN**

IN PROSPECT OF ITS ROLE AS A COMMERCIAL
HUB PORT IN THE FAR EAST

By

HAHN, YOUNG-IL
The Republic of Korea

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

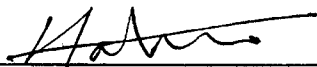
PORT MANAGEMENT
(Commercial)

1995

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature) 

(Date) 26th. Oct. 95

Supervised by:

Name: Prof. Shuo Ma
Office: Professor
Port Management Course
World Maritime University

Assessed by:

Name: Prof. J.M. Mancion
Office: Professor
Port Management Course
World Maritime University

Co-assessed by:

Name: Eric E. Pollock
Office: Port Consultant

DEDICATION

**TO THE PEOPLE WHO ARE INVOLVED
IN THE SHIPPING AND PORT INDUSTRY
IN KOREA**

ABSTRACT

Title of Dissertation: A Study on the Strategic Plan for the Port of Busan in Prospect of its Role as a Commercial Hub Port in the Far East

Degree: MSc

The object of this dissertation is to analyse the potentiality of the port of Busan in accordance with its competitiveness in prospect of its role as a commercial mega hub port in the Far East.

The port of Busan, despite its excellent merits as a first class natural harbour, has not been exposed to balanced development but has suffered from unbalanced growth caused by inadequate management policy and operation technique.

The paper mainly puts emphasis on introduction of the key elements of modern concept port, i.e. the concept of the second or third generation ports and requirements for becoming a hub port. Fortunately as the Korean government's policy line is focused on liberalisation in every sector of industries, the port of Busan has the main chance to seek innovation in regard of its infrastructure as well as suprastructure. It is well reflected by the fact that the government allocated total US \$ 10,450 million for SOC investment in its 1996 annual budget while it did US \$ 212,440,000 for construction of port and relating infrastructure.

Taking into account possible co-operation with the adjacent port of Kwangyang and a new port under construction in adjacent Gadok Island, the port of Busan may be provided with enough capacity of infrastructure to be a hub port.

However, for the viability of a modern port, suprastructure is important as well. Among the various problems the port of Busan is now facing, the prior question is how much the port related people as well as shipping people know about the complicated mechanism of modern port operation. Only a few are aware of importance of marketing strategy in the modern port management and the essence of marketing promotion.

In chapter four, after summarising the essence of port marketing and guidelines for promotion activities, the paper makes a conclusion by recommending four suggestions:

1. Minimisation of the government's intervention in port management
2. To set up a training body for the education of modern port concept
3. To organise a delegation for overseas promotion activities
4. To open the port of Busan representing offices world-wide as many as possible.

These are least but first conditions the Port of Busan should pay heed to without which there would be no feasibility for the port to face 21st century's shipping environments.

TABLE OF CONTENTS

	page
List of Tables	vii
List of Figures	viii
1. INTRODUCTION	1
1.1. Introduction	1
1.2. The object of dissertation	2
1.3. The composition of dissertation	4
2. THE KEY ELEMENTS OF MODERN CONCEPT PORT	8
2.1. Changing environments in port management activities	8
2.2. The concept of the third generation ports	10
3. THE PROSPECT OF PORT OF BUSAN	15
3.1. Current situation of the port of Busan	15
3.1.1. Definition of transshipment	15
3.1.2. Kinds of transshipment ports	16
3.1.3. Transshipment from the shipping lines' point of view	20
3.1.4. Transshipment from the ports' point of view	21
3.1.5. The needs to be a hub port	22
3.2. Expected cargo increase in the Far East in view of the statistics	24
3.3. Competitiveness of the port of Busan in comparison with those of peripheral Asian ports	26
3.4. Research for viability of the port of Busan in prospect of possible co-operation with the port of Kwangyang and Gadok Island	33
4. SUGGESTIONS AND CONCLUSION	41
4.1. The importance of marketing strategy in the modern port management	41
4.2. The essence of port marketing: information collection and research activities	42
4.3. Guidelines for promotion activities in port marketing	48
4.4. Conclusion	57
Bibliography	59

List of Tables

	page
(Table 1-1) Development of Container Traffic by Busan ODCY operators	5
(Table 1-2) Development of Container Cargo Traffic	6
(Table 3-1) Growth in Container Throughputs	25
(Table 3-2) Vessel Movement of Port of Busan	31
(Table 3-3) Vessel Movement of Port of Kwangyang	34
(Table 3-4) Infrastructure of Ports of Kwangyang and Busan	35
(Table 3-5) Berthing Capacity of Ports of Kwangyang and Busan	36
(Table 3-6) Cargo Traffic of Port of Kwangyang	38

List of Figures

	page
(Figure 3-1) Anticipated Transport Routes in 21st Century	17
(Figure 3-2) Layout Diagram of Port of Busan	18
(Figure 3-3) Main Trunk Routes of East Asia	27
(Figure 3-4) Outlook of Korea's Container Port Capacities Supply (1)	28
(Figure 3-5) Outlook of Korea's Container Port Capacities Supply (2)	29
(Figure 3-6) Layout Diagram of Gadok Island Project	40

Chapter One

Introduction

1.1. Introduction

It is becoming a matter of common knowledge that the sun - not the red sun, but the blazing sun - is rising in the east. In proportion as the economic boom of Asia in general since 1970s has acted as a vital acceleration factor for the economic growth of the whole global society, the north eastern region of Asia including the Republic of Korea(here after referred to as "Korea") and a potential economic giant, the People's Republic of China(referred to as China), marked an incomparable growth in such a surprising speed that the influx of the Age of Pacific Renaissance came to be announced as a new strong economic block.

It is no wonder, as a consequence, that North eastern Asia proved itself as a region of attention in which the sea traffic has grown the fastest of the world keeping pace with its exploding economic development.

At present, with only 5 years left before the opening of new epoch, 21st century, the countries in the region are keen, without exception, on taking lion's share of international trade cargoes by securing their own regional points as international logistics centres.

As for Korea, during the past three decades the national economy has shown a dramatic boost thanks to the successful application of government's economic development five-year-plan successively. Now Korea is counted one of the few nations on earth that weathered nation's crisis through legendary self exertion and by tiding itself over extreme poverty originated from shortage of natural resources and excessive military expenditure occurring from South versus North confrontation since Korean war (1950-1954).

Pushed by the government's strong export-oriented policy the country's GNP has increased up to US \$ 376,900 million in 1994 from US \$ 2.3 billion in 1962. Compared with the average annual GNP of Asia being 3.0% in 1994, Korea showed average annual GNP 8.0 percent growth in 1990-1994, this trend being expected to go on up to the year 2005.

The specific geographical and historical environment of Korea has resulted in its heavy dependence on seaborne trade so much as still 99.7% of the import and export cargoes are being carried by sea. Korea is the only country left on earth that still suffers tragic division caused by ideological cold war which started at the beginning of this century.

That unfavourable condition, however, has operated as strong incentive for the development of the nation's industry in general and specifically played an important part in enforcing its shipping/shipbuilding industry become major contribution to its economic boom. While the country owned only 53 deep-sea going vessels in total in 1970, now Korea ranks 9th in terms of world tonnage with 1,046,000 tons.

1.2. The object of dissertation

The object of this paper is to bring up the possibility of the port of Busan in accordance with its historical/geographical background of economical development of South Korea in prospect of its role as a commercial mega hub-port in the Far East.

Traditionally a port has been born and developed keeping abreast with the development of national trade. The fundamental function of a port can not be changed as long as it is supported by captive hinterland that has brought about production and trade. But as a result of the brisk globalisation of world's economy, the economical and transport structure of each nation met unexpected changes and the function of a port is called to be transformed and restructured to cope with the modern port concept.

As the north eastern region of Asia marked an incomparable economic growth, as mentioned above, Asia region nations are launching aggressive marketing strategies to induce container cargoes to their own ports, of which phenomenon has developed inter-port competition for hub-port.

The reason why nations struggle to have hub-ports is not only because the balanced flow of ex/import cargoes can be a primary factor in promoting national competitiveness, but also the port itself has been proved one of important revenue sources from port dues, stevedoring charges, etc. For instance, an average rent for one container berth per annum in Asian region is reported to be US \$ 10 million. Another 200 million dollars is charged for stevedoring and storage of 1 million TEU transshipment containers every year.

It is also expected to have effect on acceleration of employment in various incidental service business involved in port operation. Now there is world-wide trend that ports are considered first and foremost as commercial undertaking like any other industry.

The port of Busan, however, despite its position as the 5th container port in the world by handling 3.53 million TEUs annually, is suffering from serious congestion that drops its productivity and competitiveness. (Park C H, 1992, P 4) Severe cargo traffic congestion comes from the shortage of berths and from the specific situation that most of container cargoes using the port have to pass through trunk road of the city to be stored at off-dock container yards(ODCYs). (Table 1-1)

In 1994, total container cargo volume handled by Korean ports reached 3,320,000 TEU, of which only 1,860,000 TEU were handled by dedicated container berths and the rest of cargoes had to be treated by conventional berth facilities. (Table 1-2)

At present, the Port of Busan must be the only port in the world that is unable to accept liner shipping companies' port-calling inquires any more because of lack of berthing space in spite of the gifted condition of natural port in terms of geography and location.

The basic causes that brought about present poor infrastructure and superstructure of Korean ports including the Port of Busan, are totally attributed to the old style concepts the government has sustained in regard to port administration, port management and port marketing. The economic policy planners of the Government were not sufficiently informed of the modern concepts of port. Consequently the construction of port infrastructure has never been allocated sufficient budget for modern concept ports while there was no question about all the port facilities should be owned and operated by the State authority.

The object of this paper in that sense is to dig up the far or near causes of the problems that the Port of Busan is facing and suggest a modern port concept and a possible strategy for the Port to be mega hub-port of the Far East Asia.

1.3. The composition of dissertation

Table 1-1. Development of Container Traffic by Busan ODCY Operators

UNIT: TEU

	1989	1990	1991	1992	1993
Korea Container Terminal	219,957	214,542	211,318	268,714	307,563 (11.8%)
Kukbo	119,638	161,487	129,992	137,173	144,390 (5.5%)
Kukjae	75,558	58,637	146,596	160,210	216,530 (8.3%)
FEMTCO	9,659	10,106	7,316	17,347	7,232 (0.2%)
Korea Freight Transportation	91,136	95,525	126,150	100,856	93,382 (3.6%)
Korea Express	233,006	244,121	245,564	193,438	173,125 (6.6%)
Dongbang	89,438	91,845	99,052	123,859	137,548 (5.3%)
Dongbu Express	52,514	84,547	161,775	193,009	213,213 (8.2%)
Dongjin	33,451	41,061	51,402	51,272	65,620 (2.5%)
Samik Express	202,232	190,506	210,718	211,763	238,542 (9.1%)
Sangwoo	-	-	27,426	9,475	-
Global	331,542	363,102	373,940	349,534	390,989 (15.0%)
Shin Young	89,500	100,086	82,744	91,266	76,914 (2.9%)
Il Sang	35,009	16,454	26,304	24,850	-
Chunkyung	66,491	70,047	71,549	70,317	72,401 (2.8%)
Chunil	-	-	28,762	70,450	93,702 (3.6%)
Hanjin	301,021	247,499	218,446	219,119	252,972 (9.6%)
Hyopsung	133,598	143,404	123,244	102,647	104,528 (4.0%)
Dong Sung	-	-	-	-	21,579 (0.8%)
total	2,083,750	2,132,969	2,342,298	2,395,299	2,610,230

Source: Korea Customs Association 1994.

Table 1-2. Development of Container Cargo Traffic

UNIT: TEU, ton

class year	arrival			departure			total			cargo
	full	empty	sub total	full	empty	sub total	full	empty	sub total	
1982	292,101	91,410	383,511	402,820	64,574	467,394	694,921	155,984	850,905	14,997,996
1983	328,903	91,178	420,081	446,588	95,555	542,143	775,491	186,733	962,224	16,551,644
1984	386,498	99,779	486,277	537,050	131,391	668,441	923,548	231,170	1,154,718	19,854,065
1985	417,664	126,548	544,212	579,890	135,013	714,903	997,553	261,562	1,259,115	21,647,028
1986	520,646	166,999	687,645	769,980	101,843	871,823	1,290,626	268,842	1,559,468	28,556,725
1987	642,612	232,442	875,054	975,634	82,834	1,058,468	1,618,246	315,276	1,933,522	35,191,969
1988	746,070	223,995	970,065	1,136,905	109,729	1,246,634	1,882,975	333,724	2,216,699	40,992,110
1989	820,876	171,087	991,963	1,097,790	190,193	1,287,983	1,918,666	361,280	2,279,946	41,229,260
1990	910,569	135,085	1,045,654	1,134,698	212,816	1,347,514	2,045,267	347,901	2,393,168	43,903,933
1991	1,012,969	122,273	1,135,242	1,192,621	239,172	1,431,793	2,205,590	361,445	2,567,035	43,875,887
1992	977,297	213,160	1,190,457	1,308,739	221,338	1,530,077	2,286,036	434,498	2,720,534	43,869,573
1993	1,049,677	293,943	1,343,620	1,405,007	192,024	1,597,031	2,454,684	485,967	2,940,651	46,202,082
1994	1,211,063	442,053	1,653,116	1,599,371	188,176	1,787,547	3,178,875	657,284	3,836,159	57,595,088

Source: KMPA. *Statistical Yearbook of Shipping and Ports*.

Note: Total includes coastwise and transshipment cargoes from 1994

To illuminate the pictures of the Port of Busan properly, it is necessary to examine the problems that the port is facing and suggest a modern port concept and a possible strategy for the port. For that purpose the structure of the paper is framed by three chapters as follows.

I. Chapter One: Introduction

II. Chapter Two: The key elements (with which a hub-port) of modern concept ports (should be equipped with)

III. Chapter Three: Prospect of the Port of Busan

1. Current situation of the Port of Busan as a transshipment port.
2. Expected cargo increase in the Far East in view of the statistics.
3. Competitiveness of the Port of Busan in comparison with those of peripheral Asian ports
4. Research for the viability of the Port of Busan in prospect of possible co-operation with the Port of Kwangyang and Gadok Island.

IV. Chapter Four: Suggestions and Conclusion

1. The importance of marketing strategy in the modern port management
2. The essence of port marketing: information collection and research activities
3. Guidelines for promotion activities in port marketing
4. Conclusion

CHAPTER 2

THE KEY ELEMENTS OF MODERN CONCEPT PORT

This chapter intends to present what are the key elements in grasping the concept of modern port. As modern ports are facing new age of reforms and restructure, ports should be equipped with conceptual clarity before deciding a new port policy. The focus of this chapter is laid on the third generation port that appeared in 1980s as world-wide large scale containerisation and modern style intermodalism claimed an innovation in port system.

2.1. Changing environments in port management activities.

Nowadays growing international trade is integrating world transport activities. Transport, particularly maritime transport, which takes up more than 90% of the movement of the world trade volume, has changed tremendously to meet ever-growing requirements of trade.

Ports have to change to adjust to the new situation as well. One of the most fundamental changes should be in the attitude and policy regarding port management. Ports should be as commercially-oriented as the foreign trade and transport sectors that they service.

Modern ports are no longer passive points of interface between sea and land transport, used by ships and cargo as the natural point of intermodal interchange. Modern ports not only play an active role in the world transport system in encouraging ships and cargo to use the ports concerned, but act as an entrepot storage and transshipment port. It may be the location of an industrial and commercial export processing zone. (UNCTAD, 1992, PP 10-11)

The port is a service centre providing a variety of through-transport and commercial services to its users. A global market, intermodal services, computers and communication systems have made the port a technical service centre with an opportunity of becoming a major EDI access point for the entire trade and transport community. (Gerhardt Muller, 1995, P 188)

In the past, each port had its own market in which it enjoyed a particular geographic advantage. The situation is different nowadays. Even if trade remains stable, port business can be easily lost because of inter-port competition. As inland transport system is improved, which is happening in some developing countries, other ports may be in a position to interfere and capture part of the market. The concept of "captive hinterland" is disappearing as ports have begun to share a common hinterland. The port should make all the efforts to be competitive in the cost and quality of services maintaining a close contact with port customers and satisfying them.

The port marketing is essential in a sense that ports should take an active approach to selling their services. It is necessary to work out appropriate development and marketing targets and to improve port competitiveness.

The role of port was not as important as national economies when the development of one country's national economy was heavily dependent on national market. In

many countries, ports were managed by governments or government agencies. Further, especially in developing countries, most of the ports are still not required to act as profit making institutions but they have to satisfy numerous objectives including social and political ones, such as national safety, contribution to the state budget or local employment. Ports are regarded as administrative entities instead of commercial bodies.

But the environment of port operation is getting changed. Political and administrative regulations have made the port very weak at increasing port competition. Many ports have fully recognised commercial function and character of ports.

There is world-wide trend that ports are considered first and foremost as commercial undertakings like any other industry. In this respect, ports need to be given more freedom and responsibility based on commercial principles to survive and develop.

2.2. The concept of the third generation ports

According to UNCTAD publication, today ports can be categorised into three different generations based on several criteria port development policy, the scope and extension of port activities and the integration of port activities and organisation:

1. the first generation port
2. the second generation port
3. the third generation port.

(UNCTAD, 1992, PP 13- 21)

(1) The first generation port.

In the first generation port, ports were nothing but the interface locations for cargo between land and sea transport. The concept of first generation port applies especially to general cargo ports and some bulk cargo port before containerisation.

Apart from cargo loading, discharging and storing, other activities were not usually carried out in the port area. Such restricted scope of activities have led the port towards organisational isolation. The port was not much concerned with the transport and trade activities.

(2) The second generation port.

The second generation ports are so-called industrial ports, regarded as a transport, industrial and commercial service centre. The ports offer industrial and commercial service as well as traditional loading and unloading activity.

Consequently, the range of port activities is extended to other relevant service such as cargo packing, marking and industrial services as well as cargo transformation.

(3) The third generation port

The third generation ports that appeared in the 1980s' mainly due to the growing requirements of the international trade, the port policy makers and operators have different attitude towards the management and development of the ports. They regard their port as a dynamic international production and distribution network. They don't wait for vessels and cargo to come in, now that they have realised the cargo flows are much more volatile than in the past. Their management attitude changed from the rather passive offer of facilities and services to that of active concern and participation.

Regarding activities and services, those of third generation ports are specialised and integrated. The traditional port services such as cargo handling is and will remain as principal port activities. The difference is that logistic and total distribution services are being provided to port users together with conventional services. All conventional services are carried out by modern equipment and management know-how controlled by electronic information technology.

Consequently in third generation port, navigation services, cargo handling, storage and other traditional port services involve modern port organisation and management and are highly efficient. Besides conventional services, a third generation port is able to provide various services, such as INDUSTRIAL SERVICES, ADMINISTRATIVE & COMMERCIAL SERVICES, LOGISTIC & DISTRIBUTION SERVICES. (UNCTAD, 1992, P 15)

(A) Industrial Services

There are two kinds of industrial services, ship-vehicle related technical services, like ship repairing, engineering and technical services and cargo related ones.

(B) Administrative & Commercial Services

Quick and high volume merchandise movement among different countries requires not only that the port be efficient in its management, but also in its procedures, administrative regulations and services.

Port administrative efficiency is related with port documentation and the working schedule. Port documentation should be simple and compatible with that of trade and transport and computerised to be efficient. This documentation productivity can be obtained only through the EDI (Electronic Data Interchange) system.

(C) Logistic & Distribution Services

As one of typical logistic activities of a port today, there are several important facilities and conditions.

(1) Warehouses

Warehousing is one of the most important functions of physical distribution. Ports should provide sufficient storage space and warehouses should be located at the proximity of the port terminals. The warehouses should be equipped with modern technology. The layout and equipment of the warehouses are to be well adapted to

the high requirement standards of port users, such as air-conditioned storage, high-rack storage, full computerised monitoring systems.

(2) EDI (Electronic Data Interchange)

The criteria of judging a third generation port can be heavily depend on if it has a capacity for information processing and distribution. The quality of the port is directly concerned with not only that of infrastructure and services but also the quality of information.

EDI is a system whereby electronic information is interchanged between one computer and another using a communication package which has the ability to share and exchange information among port operators, administration and port users. (UNCTAD, 1992, P 19)

A third generation port, as an information centre, have several important roles. The port should be able to offer:

- information regarding containers to be discharged. With EDI the information is available several days before arrival of the vessel, which containers have been discharged, their location and when cargo is required to be delivered.
- information on what containers are located in the container yard, and what containers have been booked to move where, when and by what transport.
- information regarding yard handling and storage capacity, the extent of delay to inland transport.
- information on inland road and railway transport and feeder service availability including costs.
- information regarding the logistics of re-positioning of empty containers for subsequent vessels. It is necessary because of unbalance of the numbers of containers discharged and loaded.

(3) Customs clearance

Excessive time-consuming customs clearance can be a big obstacle to the physical distribution of cargoes. Unnecessary check of individual consignment deterring port productivity should be removed based on modern technology.

The computer system utilised by the port community is linked to the computer systems of the customs. When goods are coming into the port, the information is fed, inter-changed and processed. Only a small percentage of the consignments will be checked.

In a port distribution centre, duty and excise taxes are only paid on final delivery. All the products which enter the warehouse are recorded on computerised lists. When they are sold and leave the warehouse they are again recorded on the lists. At the end of every month, both lists are handed to customs for import duties.

(4) Value-added services

In a distribution centre, added value can take different forms such as cargo consolidation and deconsolidation providing up-to-date information on the inventory and cargo movements, stuffing & unstuffing containers, palletising, shrink-wrapping, labelling, weighing, repacking etc.

Other activities in the field of transshipment, storage, processing, distribution and transport of fresh fruit, vegetables, deep-frozen food products and fruit juices are also value-added services.

Apart from a number of services above, the relation between the port and the local government (or municipality) can be a very important factor to become a third generation port. As a distribution centre and logistics centre, the port is becoming more and more dependent on and integrated to the surrounding city.

CHAPTER 3

THE PROSPECT OF PORT OF BUSAN

3.1. Current situation of the port of Busan

3.1.1. Definition of transshipment

The term 'transshipment' normally means the complete activity of offloading cargo from one ship, handling ashore and reloading onto another ship. Occasionally the term is used to describe direct transfer between two ships or a ship and a barge. (UNCTAD, 1985 b, P 4)

Transshipment is sometimes misused in another sense which is apt to cause confusion. It is simply meant by unloading from the ship. But sometimes transshipment is used to mean the transit operations carried out on goods unloaded at a port en route to another country, often a landlocked one. In this case, the expression 'transit', 'pre-haulage' or 'post-haulage' would be more appropriate.

There is, however, a particular form of transshipment which is of particular and growing interest. This is the transfer of a container from a ship to an overland mode of transport (rail or road) for carriage to another port which is often remote from the first one (for instance, from the East to the West Coast of the US), where it will leave on another ship. (UNCTAD, 1990, P 7)

The case of the Port of Busan is well explained by this new definition of transshipment port. According to the formation of regional economic blocks all over

the world, the importance of intra-Asia economy is also on the rise. Apart from seaborne trade in the region it is expected to be another unified transport system connecting Japan, Korean peninsula, China, Russia, Mongolia and Europe.

If the economic co-operation between South and North Korea is activated in the near future, TKR (Trans-Korea Railway) will link southern Korean ports with the TSR (Trans-Siberia Railway) and TCR (Trans-China Railway) directly through the reconstruction of rail between South and North Korea. (Yang W, 1993, P 68)
(Figure 3-1 & 3-2)

These railway systems will be defined as the land bridge, '21st century's new silk road' between Asia and Europe. This type of operation, which may be regarded as an extended form of trucking between two quayside berths in the same port, is identical in purpose to transshipment, since it involves transfer from one ship to another even though it is deferred in time and space.

The strategy form making the best use of geographical and economic environments of Korean peninsula is required to be set-up so that the country can become the centre of logistics in north eastern Asia.

3.1.2. Kinds of transshipment ports

There are various kinds of ports directly or indirectly involved in transshipment operations which may be divided into four main categories: (UNCTAD, 1990, PP 9-10)

(a) Dedicated hub ports

Situated either at the intersection of main sea routes or at one end of such routes at a place where the flow of container traffic is to be split up to serve the ports of the

Anticipated Transport Routes in 21st Century

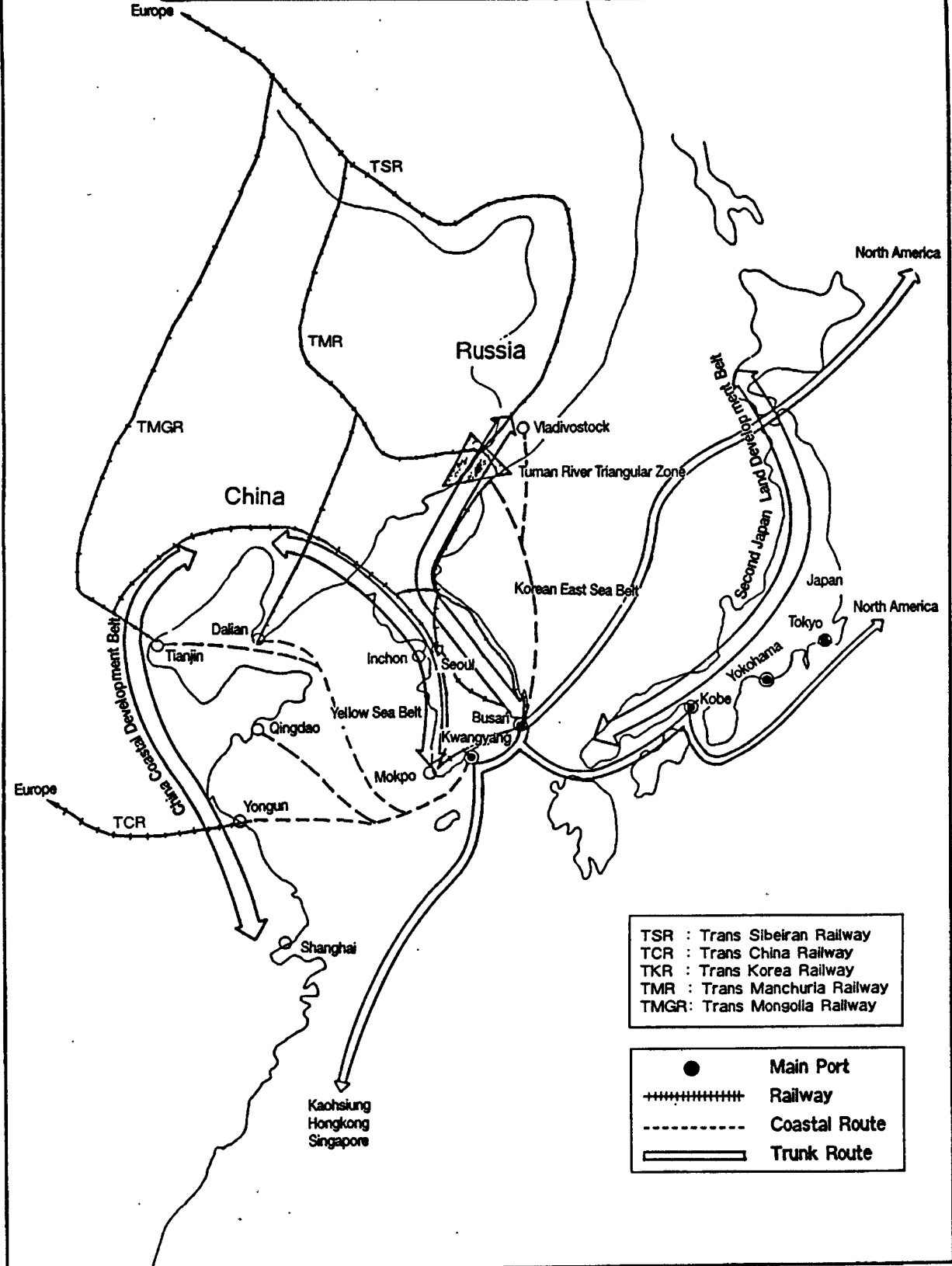


Figure 3-1. Anticipated Transport Routes in 21st Century.

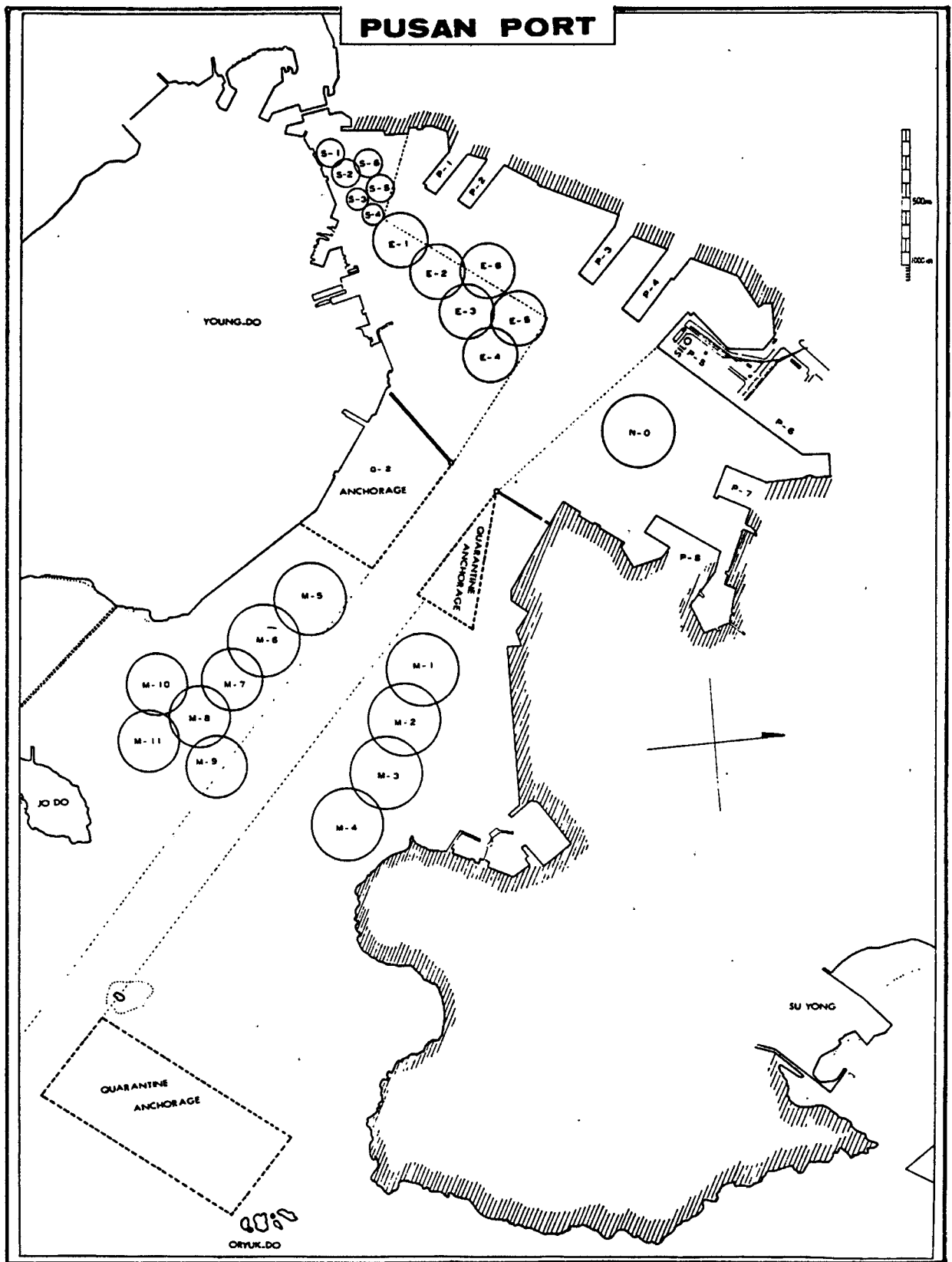


Figure 3-2. Layout Diagram of Port of Busan

neighbouring sea, these hub-ports to be found in favoured geographical areas and at favoured sites which can berth motherships. These ports are veritable nodal points where container flows intersect without going inland, while national traffic is on a limited scale.

(B) Hub and load-centre ports

These ports are comparable to those of the previous category so far as transshipment operations are concerned. They can accommodate all kinds of transshipment according to requirements: interlining, scattering for delivery in the neighbouring area, switching, catching-up and by-passing. They differ from those in the previous category, however, in that they also carry substantial traffic of their own bound for or from their hinterland.

Several of the big ports situated on the main transoceanic routes fall into this category; Rotterdam is an example. They vary more widely in technical characteristics. The biggest such ports have to meet the same requirements as the ports previously described and must in addition be equipped for the traditional operations of container stuffing and stripping, customs clearance and haulage of goods. These ports have substantial traffic of their own and can provide a high density and frequency of departures that attract big shipping lines, feeder services and shippers.

(C) Direct-call ports

These are also situated on the main transoceanic routes and their main ambition is to remain on the list of ports of call for motherships in order to avoid being "feeder ports".

(D) Feeder ports

This category comprises all ports which receive only feeder ships to load or unload containers carrying the trade of the surrounding area. They are thus situated at the

end of the branch routes into which the traffic from the ports in the first two categories splits up.

The purpose of this classification is to make the transshipment process easier to grasp and to enable port authorities to see more clearly where they stand in relation to it, especially in developing countries. But this classification does not include all kinds of ports.

A port, like the case of Busan, can be classified as two or three types of above classification. And also we should not miss the point that a port is not fixed identity but always transforming being. In that sense it is very important what kind of view the port policy maker should have about the role of transshipment function.

3.1.3. Transshipment from the shipping lines' point of view

The better to adjust to market requirements, the big shipowners have brought into service third-generation and fourth-generation ocean-going container vessels which use economies of scale to bring down the unit cost per container carried. These container ships operate at full efficiency only when they sail full laden on deep-sea routes. (UNCTAD, 1990, P 11)

This led to the idea of concentrating their stops on a limited number of main ports, or even one such port, that were particularly efficient and easy of access, and of using those hub ports as the nodes of intersection of a veritable network of main and secondary sea routes, so that cargoes might be combined, ships better filled and the number of ports servable from each port in the network increased.

Transshipment clearly has a favourable effect on the cost of operating the ocean-going ship called the "mothership", and on transit time between transshipment ports,

for it limits the calls for the mothership and increases the density of traffic, which means a reduction in waiting time.

It nevertheless means using less cost-efficient vessels on the approaches to secondary ports and, more important, additional handling, the cost of which is a vital consideration in weighing the case for and against transshipment. The big shipping lines sometimes employ dedicated feeder ships in order to ensure that connections are made precisely and efficiently. Where the common carriers give satisfaction, the feedering is entrusted to them. (Stuchtey. Rolf W, 1991, P 16)

3.1.4. Transshipment from ports' point of view

Port authorities are keenly interested in transshipment traffic, in which they see sizeable advantages to be gained both directly and indirectly. (UNCTAD, 1990, P 13)

In transshipment operation the container is handled twice on the outward leg of the journey and often twice more on the return leg, which means an increase in the number of harbour operations (and earnings thereon) for the same volume of shipping traffic.

Transshipment activities bring other benefits to the port community: bunkering and repairs for the ships, container maintenance, shipping agencies, insurance, sometimes free zones, etc. The port's hinterland also benefits, for transshipment brings large motherships which the port's own traffic would not have attracted, thus giving it access to better freight rates and a higher quality of service.

However, the development of large harbour terminals for the latest generations of container ships is a very expensive undertaking. There can be a real risk of over-

investment when several ports in the same region equip themselves to attract the same shipowners.

Transshipment traffic is certainly of great interest from the standpoint of the port authorities, but it is volatile and very demanding and thus entails a degree of risk which calls for careful evaluation.

3.1.5. The needs to be a hub-port

Only the case of hub-load centre ports are mentioned here since the 'dedicated transshipment ports' are very rare and have the same requirements as the hub-load centres less those specific facilities and services necessary for the reception & delivery of inland traffic. A potential hub-port's ability to attract transshipment traffic will depend on a number of factors, including geographic location in relation to the main maritime routes, the magnitude and nature of the port facilities, and on the quality and cost of its performances. (Containerisation International, Dec 1994, P 14)

Potentially relevant aspects include the depth of water in approach channels and at berths (12m seems to be a minimum) and an acceptable air draught at the berths (to receive over Panamax vessels). Other factors will be the extent and availability of stacking areas, of container freight stations, and of cold stores and other specialised facilities, as required.

In a hub-port, the adequate availability of quay cranes and shore handling equipment will be an important requirement and here "availability" means effective availability, i.e. of equipment maintained in good working order. There will also be need for the adequate multishift availability of labour (with night shifts and the port remaining open everyday), and good basis for labour relations is obviously a vital need.

Apart from this, potential transshipment users will naturally be looking for quick operations, both in relation to vessels and to container movements. Efficient operations in large container terminals imply a requirement for efficient control and for the availability of management information services, and the availability of computerised information can be of value not only in relation to port and container terminal operations but also in a marketing sense as a service to users.

If transshipment activity is to be attracted successfully, it is of course important to secure the fullest possible co-operation between the customs administration, port authorities and terminal operators and port users (shippers, shipowners), the purpose being to make as simple as possible the transshipment of cargo through a port, whether directly or with cargo storage for shorter or longer periods.

Forms of organisation appropriate to any country have to be devised and may include, for example, the development of a free port or free trade zones. A positive approach is to encourage potential users to develop areas within a port as centres for regional warehousing, where cargo can be stored until it is required and is shipped out.

If a port's transshipment potential is to be developed successfully, the necessary marketing work will have to be carried out. Port charges are an obvious subject of marketing importance. If ports are to attract transshipment, charges must be competitive and may be set at lower levels than on domestic traffic.

Where appropriate, as part of their marketing strategies ports may also wish to consider the leasing of berths as a way of encouraging major users to develop their transshipment activities there. Port marketing activities will in any case included co-operation with port users, whether directly or indirectly. Such co-operation may

involve the port carrying out marketing work to attract additional feeder services which, if attracted, would generate additional transshipment traffic.

Everything is linked, the success of a hub-port requires a high degree of development of feeder services to ensure a high frequency of sailings to the feeder ports. If ports are to attract transshipment business successfully, they will probably have to do so in competition with other ports, and competition is in fact affected not only by the facilities and services provided by the port, but also by the quality of the various facilities or services which may be available in or near to the port but which are provided by quite separate organisation.

Such services may include the availability of efficient and helpful shipping agents and of competitive insurance, financial and maintenance services. Clearly, wherever relevant, the attractiveness of a port for transshipment traffic is enhanced by co-operation between the port authority and the various outside bodies concerned. (UNCTAD, 1990, PP 53- 54)

3.2. Expected cargo increase in the Far East in view of the statistics

Since 1970s, the world has experienced the fastest growth of sea traffic volume in history keeping pace with an exploding world-wide economic boom, which in consequence accelerated containerisation, so-called 20th century revolution in cargo transport. During the period from 1980 to 1992, the world's total sea-borne trade volume showed average 1.3% increase every year while that of unitised cargo marked annual average 8.9% increase.

The component ratio of containerised cargo versus general dry cargoes became more than double during the same period as 6.4% of 1980 increased to 14% in 1992.

Moreover, the increasing speed of unitised cargo in Asian region was recorded faster than that of world-wide unitisation speed.

From 1985 to 1990, the total container cargo volume carried throughout Asian countries marked average 13.9% increase while that carried throughout the whole world showed only average 8.9% increase.

The increasing tendency of unitised cargo in Asian region is outlooked to continue until 2000, when the Asian countries are supposed to take up 49.0% of the container cargoes of the world, while north-eastern Asia is to take up 64% (51,600,000 TEU) of the whole Asian market (80,400,000 TEU). (Table 3-1)

Table 3-1. Growth in Container Throughputs (in '000TEU)

Country	% increase 1991/92	1993	% increase 1992/93	% increase PA to 2000	2000
Japan	3.9	9 348	4.2	7	14 288
China	33.6	2 749	36.7	15	6 359
Hong Kong	29.3	9 204	15.5	16	22 425
South Korea	2.1	3 071	11.6	12	6 061
Taiwan	0.8	6 795	10.0	12	13 412
Indonesia	20.8	1 601	14.7	13	3 332
Malaysia	13.4	1 398	14.8	13	2 910
Philippines	2.5	1 659	10.6	11	3 103
Singapore	22.7	9 046	19.7	16	22 040
Thailand	14.2	1 492	11.6	12	2 945
Vietnam	172.0	250"	83.8	15	578
Total	13.6	46 613		13	97 000
Worldwide	10.5	112 439	9.3	9	188 000
% Total\World		41.5			51.6

Source: *Containerisation International Yearbook data with analysis by author*

Note: "estimates

This tendency of the world's sea traffic's historical growth can be attributed to three root causes. The first cause that evoked explosive increase of sea-borne cargoes is

assigned to the international trend of liberalisation concept the developed and developing countries chose as policy in the process of economic development started from the later part of 20th century.

Thanks to open policies nations have adopted, nations began to assume (take part in) devising production system among themselves making the whole global society into a few industrial communities or economic blocks. As a consequence there arose indispensable opening of local shipping markets and massive trading of raw material and completed commodities among the partners.

Secondly, the pervasion of open registry like a flag of convenience system or second ship-registry system encouraged the shipowners to purchase more vessels with less burden, which raised the percentage of flag of convenience's fleet up to 50.7% in the end of 1993.

The third cause of sea-borne traffic explosion can be attributed to the liner containership operators. The frequency of vessel service was on the continuous rising curve and liner operators service route went on diversification every year without even one exception. (Figure 3-3)

When analysing these causes and other joined factors, the increasing tendency of unitised cargo in Asian region is viewed to go on until 2000 and more than half of container cargoes of the world will be treated in the Asia region. (Figure 3-4 & 3-5)

3.3. Competitiveness of the Port of Busan in comparison with those of peripheral Asian ports.

Main Trunk Routes of East Asia

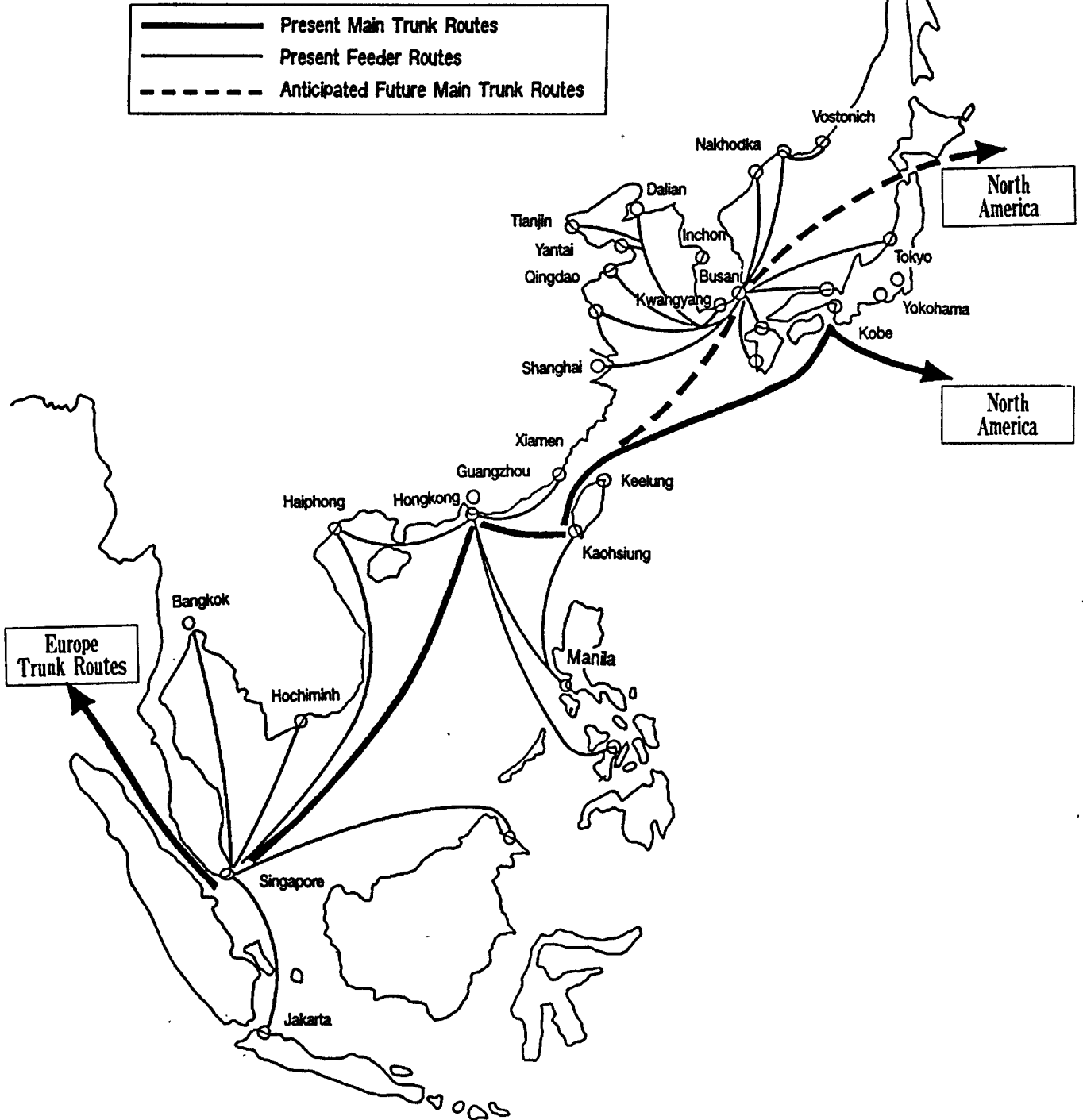
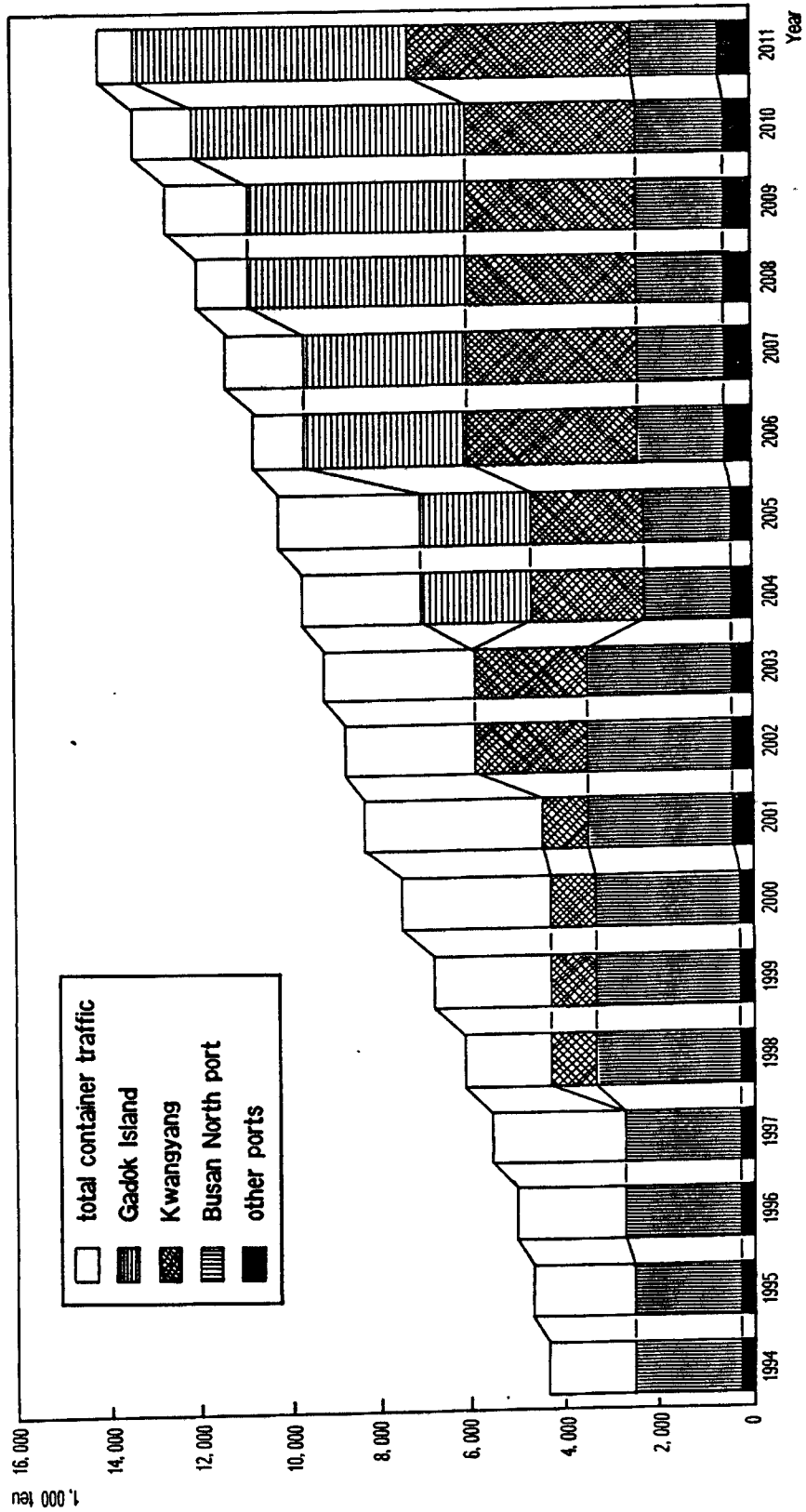


Figure 3-3. Main Trunk Routes of East Asia

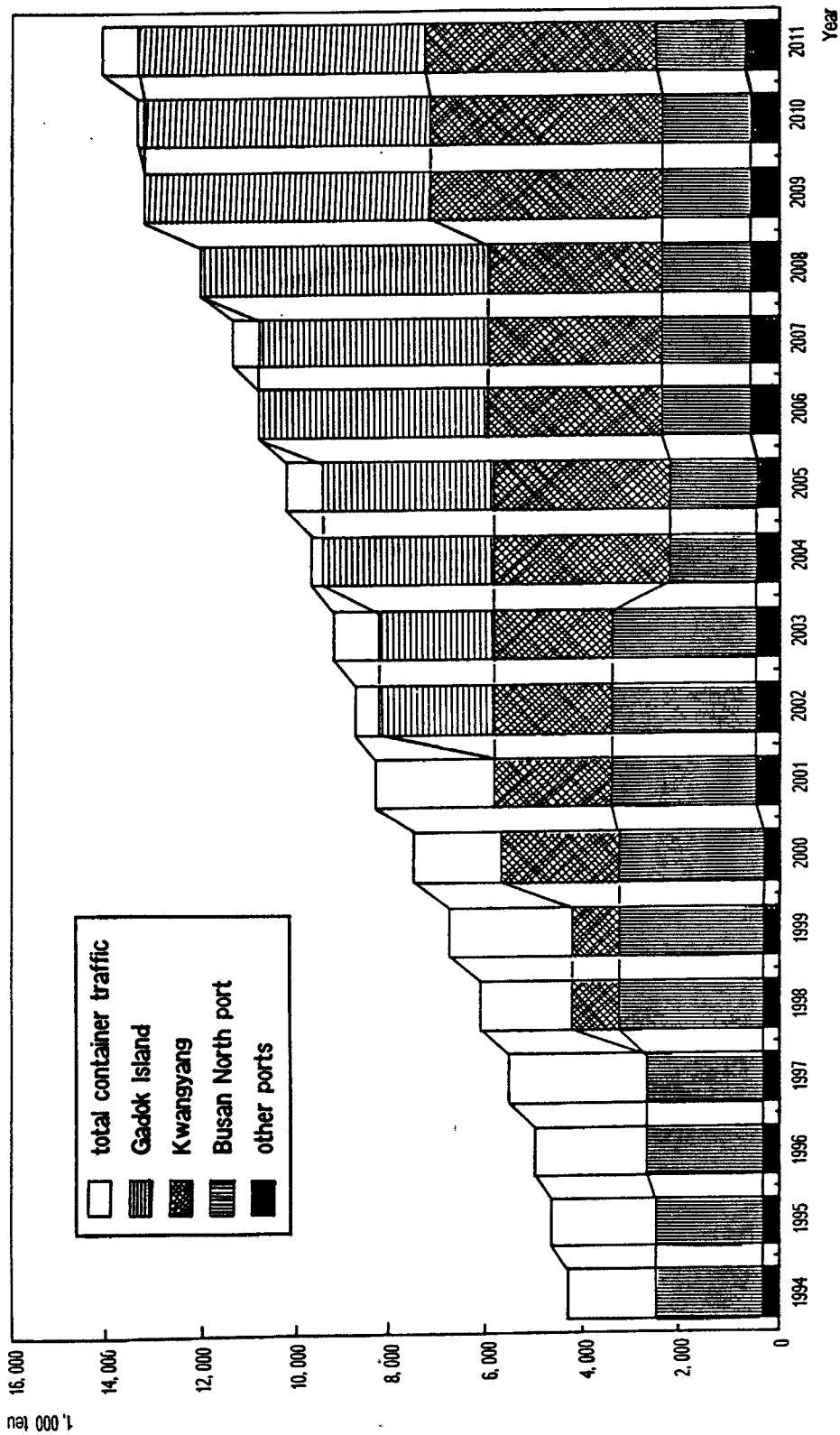
Outlook of Korea's Container Port Capacities Supply(1)



* 1) The supply outlooked when the 1st stage of Kwangyang Development is to be completed in 1998 and the 1st stage of Gadok Island Development in 2004 respectively.
 2) Busan North port is to be redeveloped in 2004 after Gadok is opened

Figure 3.4. Outlook of Korea's Container Port Capacities Supply (1)

Outlook of Korea's Container Port Capacities Supply(2)



* 1) The supply outlooked when 2nd /3rd stage of Kwangyang Development is to be completed in 1996 and the 1st stage of Gadok Island Development in 2004 respectively.
 2) Busan North port is to be redeveloped in 2004 after Gadok is opened

Figure 3-5. Outlook of Korea's Container Port Capacities Supply (2)

The port of Busan faces competition involved in container transshipment. Excellent geographical location of Busan helps challenge peripheral Asian ports as one of the most advanced transshipment ports.

The port of Busan, however, has a long way to go to overcome present chronic congestion caused from the serious shortage of berths.(Table 3-2) It is one of major elements that drops productivity and competitiveness of the port. Overall competitiveness including service level also lags far behind the other competing ports.

The port of Busan has 7 dedicated container berths as of August of 1995 and it represents 1/3 or 1/4 of berthing ability Kobe or Kaoshiung are equipped with. The ratio of transshipment cargo which is the main criteria of the hub port function shows 14.7% in 1994 and does not come up to Singapore's 70% or Kaoshiung's 40%.

In the past, each port had its own market in which it enjoyed a particular geographic advantage. The situation is different nowadays. Even if trade remains stable, port business can be easily lost because of inter-port competition. As inland transport system is improved, which is happening in some developing countries, other ports may be in a position to interfere and capture part of the market. The concept of "captive hinterland" is disappearing as ports have begun to share a common hinterland. The port should make all the efforts to be competitive in the cost and quality of services maintaining a close contact with port customers and satisfying them.

Particularly Kobe, Yokohama of Japan, Busan, Kwangyang of Korea, Kaoshiung of Taiwan are standing in hot competition one another while Shanghai of China is considered to be a potential challenger in the future.

Table 3-2. Vessel Movement of Port of Busan

class year	ocean-going						coastal		total	
	in		out		sub total		No.	'000GT	No.	'000GT
	No.	'000GT	No.	'000GT	No.	'000GT				
1981	8,344	51,520	8,362	51,696	16,706	103,216	7,973	6,786	24,679	110,002
1982	8,505	58,859	8,583	58,758	17,088	117,617	9,315	6,894	26,403	124,511
1983	8,790	68,079	8,680	66,252	17,470	134,331	10,398	7,748	27,868	142,079
1984	8,825	74,465	8,669	72,584	17,494	147,049	11,411	9,113	28,905	156,162
1985	9,291	80,656	9,297	80,402	18,588	161,058	11,776	9,323	30,364	170,381
1986	9,793	88,438	9,794	89,624	19,587	178,062	12,372	9,787	31,959	187,849
1987	10,471	102,445	10,494	102,536	20,965	204,981	14,211	11,114	35,176	216,095
1988	11,175	100,807	11,029	100,645	22,204	201,452	13,833	11,255	36,037	212,707
1989	12,414	109,511	12,266	108,669	24,680	218,180	15,049	14,137	39,729	232,317
1990	12,185	105,689	11,865	106,664	24,050	212,353	13,369	12,683	37,419	225,036
1991	14,386	116,380	14,130	115,323	28,516	231,703	16,607	16,066	45,123	247,769
1992	14,937	126,090	14,843	126,044	29,780	252,134	17,450	18,641	47,230	270,775
1993	15,079	131,240	15,184	131,620	30,263	262,860	19,041	20,892	49,304	283,752
1994	16,859	153,127	16,895	153,212	33,754	306,339	21,512	22,913	55,266	329,252

Source: KMPA. *Statistical Yearbook of Shipping and Ports 1995*

Obviously besides the struggle for the position of hub port, an intensive competition among Asian ports is cited not only because it induces smooth transport of domestic captive cargoes, but because of changing environment in port management activities. It is widely acknowledged that the container port operation promises high profitability.

For instance, Hongkong, Singapore and Kaoshiung are qualified hub ports of Asia, their transshipment cargo ratio versus transit cargoes marking 70%, 70% and 40% respectively. The north eastern Asia has no equal to these transshipment ports, only Kobe recording 30% of transshipment ratio. There is still a long way to go for the port of Busan to level itself up to be the match of Japan's Kobe in terms of transshipment ratio. Until 1992, the transshipment ratio of Busan remained 6% only and from 1993 it began to leap up to 12%, and in 1994 to 14.7%.

Even though at present Busan, Kobe/Yokohama, Kaoshiung and Shanghai are far behind Hongkong, Singapore, etc., in terms of their function and facilities as transshipment port, they are standing in competition with one another for the hub point of north eastern Asia region.

Shanghai is considered a feasible place as a hub port as it possesses the advantage of easy access to the main trunk routes, but it is not negligible that there are disadvantages of difficult port maintenance as it should pay the extra dredging cost occurred from Yangtza River flood every year. Other ports of China, Chenjian and Dalien are suffering from similar problems.

As for Kobe/Yokohama, price oriented shippers in Kyushu province and west coast Nigata & Hakata region of Japan get more benefits when they choose the port of Busan as transshipment point rather than Kobe or Yokohama for their cargo delivery to North America. (Containerisation International, Dec 1994, P 14) For instance, it

costs around US\$ 1,000 to transport one 40 foot container by feeder vessel or truck between Northern Kyushu province and the port of Kobe. On the contrary, 500\$ is enough to deliver the cargo from North Kyushu to the berthing place of Busan. The port of Busan has also cheaper price with US\$ 15 compared to Osaka (220\$), Yokohama (280\$), and Kobe in regard of basic stevedoring charge per 40 foot container.

This is reflected by the increasing tendency that the cargoes from the west coast of Japan including Kyushu and Nigata area reach the port of Busan by feeder vessel where transhipped again to motherships. Looking into Asia-North American main trunk route in geographical viewpoint, shipowners can save 90 nautical miles with direct access to North America via Busan passing through Suruga Channel.

The following chart shows that the port of Busan has advantage over Kobe with regards to distance.

Kaoshiung-Busan-Los Angeles: 6,160 miles (90 miles shorter than via Kobe)

Kaoshiung-Kobe-Los Angeles: 6,250 miles

Kaoshiung-Busan-Kobe-Los Angeles: 6,396 miles

3.4. Research for viability of the port of Busan in prospect of possible cooperation with the port of Kwangyang and Godok Island

It was from 1988 that the Korean government turned attention to 'Two-Port System', which is understood as the government's 'Strategy of Balanced Promotion for Busan & Kwangyang Development'. The purpose of the new port-developing strategy is designed by the government to find some solution for problems coming from underdeveloped conditions and poor infrastructure of older aged Busan and comparatively young aged port of Kwangyang. (Table 3-3)

Table 3-3. Vessel Movement of Port of Kwangyang

class year	ocean-going						coastal		total	
	in		out		sub total		No.	'000GT	No.	'000GT
	No.	'000GT	No.	'000GT	No.	'000GT				
1981	421	6,901	436	6,989	857	13,890	6,793	9,841	7,650	23,731
1982	727	9,635	728	9,511	1,455	19,146	7,570	9,681	9,025	28,827
1983	932	10,486	916	10,577	1,848	21,063	8,841	11,282	10,689	32,345
1984	1,000	12,485	1,008	12,502	2,008	24,987	9,291	12,073	11,299	37,060
1985	870	13,112	858	13,098	1,728	26,210	9,872	14,208	11,600	40,418
1986	1,094	14,173	1,090	14,497	2,184	28,670	11,168	16,948	13,352	45,618
1987	1,322	24,961	1,304	24,883	2,626	49,844	13,792	17,887	16,418	67,731
1988	1,756	32,859	1,766	32,783	3,522	65,642	14,885	21,694	18,407	87,336
1989	2,214	35,894	2,231	36,384	4,445	72,278	17,444	23,322	21,889	95,600
1990	2,621	40,767	2,611	40,168	5,232	80,935	18,615	25,280	23,847	106,215
1991	2,624	41,237	2,652	41,194	5,276	82,431	20,274	29,166	25,550	111,597
1992	2,872	46,446	2,907	47,022	5,779	93,468	21,656	30,650	27,435	124,118
1993	3,109	51,890	3,105	48,714	6,214	100,604	22,398	33,532	28,612	134,136
1994	3,245	51,514	3,243	51,449	6,488	102,963	24,649	36,896	31,137	139,859

Source: KMPA. *Statistical Yearbook of Shipping and Ports 1995*.

The port of Busan has been the first and the most advanced international gate of Korea since it was opened in 1876. As described in the previous chapter, at present the port of Busan is provided with 7 dedicated container berths as of August of 1995 and it represents 1/3 or 1/4 of berthing ability of Kobe or Kaoshiung. The ratio of transshipment cargo which is the main criteria of the hub port function shows 14.7% in 1994 and does not come up to Singapore's 70% or Kaoshiung's 40%. (Table 3-4 & 3-5)

Table 3-4. Infrastructure of Ports of Kwangyang & Busan

port		Kwangyang	Busan
class			
	quay (m)	6,998	15,506
	break water (m)		3,919
	pier (No.)		3
	wharf (m)	160	9,040
	berthing capacity	47	89
shed	No.	2	18
	area	6,930	82,806
	capacity	6,000	173,893
ware-house	No.		
	Area (m ²) capacity		
open storage	area (m ³)	306,023	1,065,072
	capacity (ton)	985,148	2,283,140
tug boat	No.	8	19
	HP	21,435	40,790
patrol-boat	No.	1	2
	GT	38	53
crane-boat	No.		
	GT		

Source: KMPA. *Statistical Yearbook of Shipping and Ports 1995*.

Note: As at the end of 1994.

At present the government is advancing the construction of the 4th stage container terminal in the Busan North Port in order to accommodate the volume increase of transshipment cargoes. A rapid surge of domestic export/import cargoes influenced by nation-wide economic boom since late 1993 is inducing the completion of terminal construction ahead of schedule within 1998. While export/import cargoes in the port

Table 3-5. Berthing Capacity of Ports of Kwangyang & Busan (1)

UNIT: 1,000 DWT

Berthing capacity Port	260,000	250,000	200,000	150,000	100,000	80,000	70,000	60,000	50,000	40,000
Kwangyang	2	2		2	1		1		5	1
Busan									9	

Berthing Capacity of Ports of Kwangyang & Busan (2)

UNIT: 1,000 DWT

Berthing capacity Port	30,000	20,000	10,000	8,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000	total
Kwangyang	4	4	1		1		12	1	8	1	1	47
Busan	1	10	8	10	3	3	17	4	10	3	11	89

Source: KMPA, *Statistical Yearbook of Shipping and Ports 1995*.

Note: As at the end of 1994.

of Busan grew 17%, transshipment cargoes showed dramatic 126% increase during 1994.

The port of Kwangyang whose potential productivity has drawn public attention since the government proclaimed 'two port system', has 47 berths, quay length totalling 9.7 km, 100,264,000 tons of cargo handling in 1994, equipped with 6 berths which can accommodate vessels larger than 100,000 DWT. The port of Kwangyang is also planning to open the first container terminal before the end of 1997 with a view that the main cargoes, like crude oil, iron ore and coal are expected to increase according to the expansion of handling capacity. (Table 3-6)

The prime function of the port of Kwangyang has been relating to the support of near-by petro chemical and steel work industries since 1969. (Moon H, 1994, P 40) A new container terminal plan was announced by the Korean government to meet the increasing demand for container traffic, which is now being carried out. The first step of the plan is to build 4 container berths with the capacity of 960,000 TEUs to be opened in 1997. As for the second stage, additional 6 berths are planned to be accomplished by the year 2001. There will be overall 20 berths in 2011, when the final stage (3rd and 4th) be finished. In spite of all these construction plans, until 1997, on account of present shortage of capacity, the port of Busan is viewed to suffer from severe port congestion.

When applying the shipping lines' point of view of transshipment who has brought into service third-generation and fourth-generation ocean-going container vessels using economies of scale for the cost down per container carried, the port of Busan may be graded as inferior qualification.

But besides the two port system concept (now being remodelling by the government for earlier completion), the port of Busan is provided with another solution to

Table 3-6. Cargo Traffic of Port of Kwangyang

UNIT: '000GT

year \ item	crude oil&products		cement		coal	
	in	out	in	out	in	out
1986	13,724	8,849	217		2,240	926
1987	15,128	9,830	959	7	3,583	831
1988	15,372	10,312	1,565	2	6,353	1,335
1989	17,301	11,484	2,476	2	7,613	1,628
1990	18,691	12,090	2,753		7,803	1,444
1991	19,935	13,311	3,663		8,677	657
1992	22,881	13,091	3,980		9,688	7
1993	27,029	13,098	2,577	8	10,721	1
1994	31,519	15,029	1,806	7	11,236	52

UNIT: '000GT

year \ item	iron ore		others		total	
	in	out	in	out	in	out
1986			3,156	1,871	19,337	11,646
1987	3,446		3,153	3,111	26,269	13,779
1988	7,347		3,330	5,273	33,967	16,922
1989	9,501		4,187	5,531	41,078	18,645
1990	9,994		5,019	6,268	44,460	19,802
1991	14,593		5,378	8,302	52,246	22,270
1992	16,016		5,684	10,735	58,149	23,833
1993	18,939	3	7,199	12,586	66,465	25,696
1994	19,715		8,745	12,154	73,022	27,242

Source: KMPA. *Statistical Yearbook of Shipping and Ports 1995*.

realised its ambitious reformation scheme as a third generation port. It is Gadok Island Development Plan.

The Gadok Island Development Plan is one of Korean government's new SOC investment plans for the re-enforcement of national competitiveness for the coming 21st century. One of the main political features President Kim's Administration took up is to free economy from government's intervention and allow waves of decentralisation and deregulation to flow into all walks of sectors. (Korea Shippers' Journal, 17 Apr 1995, PP 30-34)

The Gadok Island Development Plan, too, designed as an ultra-modern infra & superstructure port construction project is to be implemented from 1996 to 2011 by investing US\$ 4,459 million including private funds. At present three private construction companies are participating in constructing foundation for the port infrastructures including breakwaters (7.3km), quays (13km), berthing capacities (53, maximum capacity of 50,000 DWT) and annual unloading capacities of 69 million ton. For the financing of this foundation construction, US-\$ 2,597,402 of private funds are invested by Samsung Construction, Halla Engineering and Dongil Engineering Corp. (Figure 3-6)

In conclusion, assuming the government's two-port system strategy and ambitious Gadok Island Development Project to be adequate and feasible for remodelling infrastructure of Busan into modern concept port, the viability of the port of Busan would remain how it would be equipped with modernised suprastructure. In that sense, of the new concept the importance of marketing strategy may be the very point this paper intends to introduce as a conclusion of dissertation.

釜山 加德島 新港灣 開發計劃 平面圖

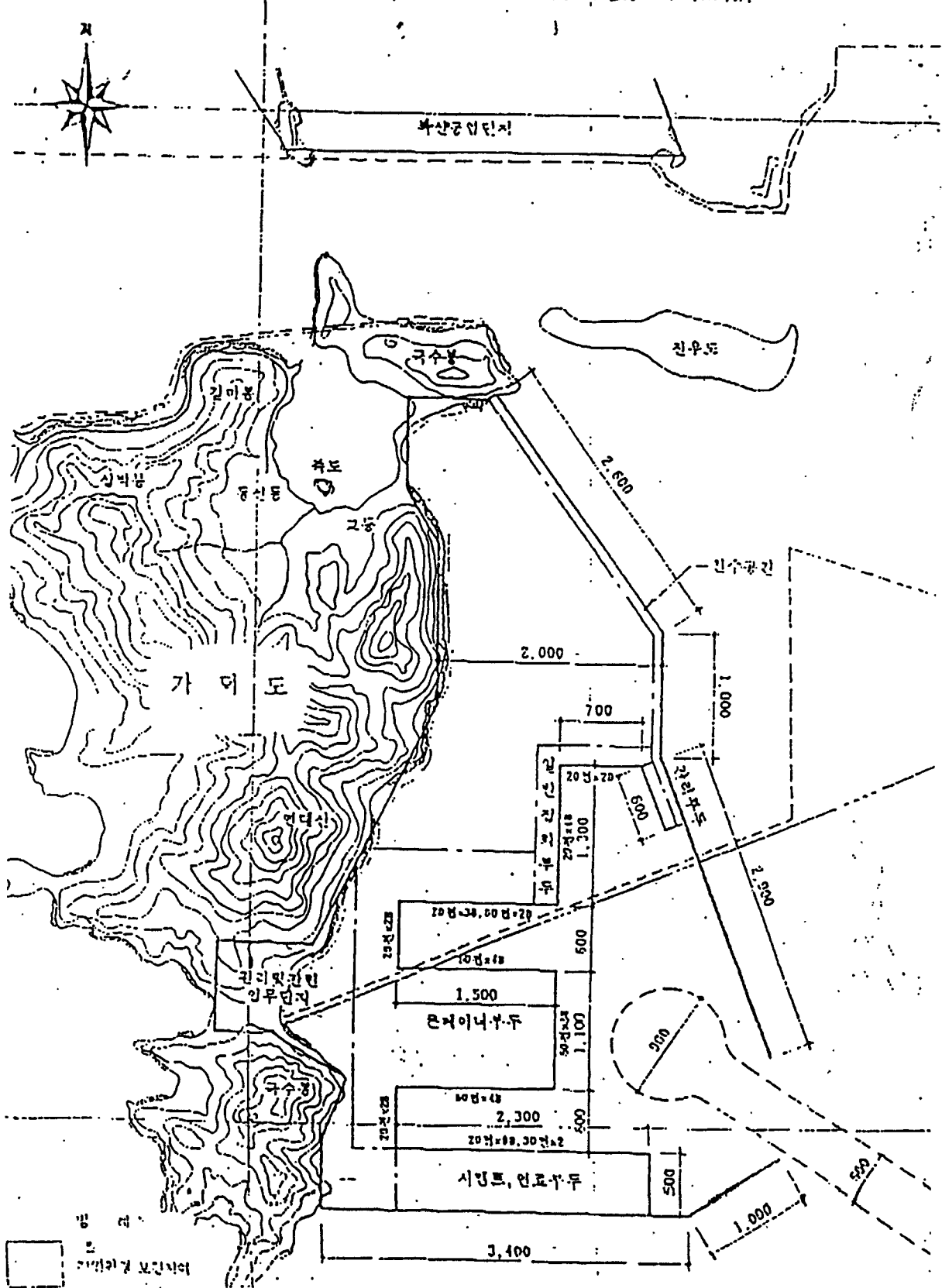


Figure 3-6. Layout Diagram of Gadok Island Project

CHAPTER 4

SUGGESTIONS AND CONCLUSION

4.1. The importance of marketing strategy in the modern port management

Today's third generation port concept that appeared in the 1980's mainly due to the growing requirements of the international trade, claims the port policy makers and operators to have different attitude towards the management and development of the ports. They should regard their port as a dynamic international production and distribution network. The reasons underlying the choice of port by shippers and shipowners are often varied. The port takes an active role and determines exactly what her customers need and analyses the factors underlying their decisions.

Though a third generation port possibly retains the traditional port services such as cargo handling as principal port activities, it is assumed to provide various services, such as industrial services, administrative & commercial services, logistic & distribution services. The ports need not wait for vessels and cargo to come in. Now that they have realised the cargo flows are much more volatile than in the past, their management attitude changed from the rather passive offer of facilities and services to that of active concern and participation. In that sense, marketing is very important in today's competitive situation in the port's environment. Its role is increasingly becoming of importance.

As the object of the paper is to substantiate the importance of marketing activities for the development of a port, this chapter would explain in detail the essence factors consisting port marketing in accordance with today's third generation port concept.

4.2. The essence of port marketing: information collection and research activities

Today marketing is one of the most critical activities of a port. Port services are financially viable only if they can be sold in the market. First of all, good services at reasonable prices are essential to perform good marketing. Bad port services can hardly be sold in a competitive market even with excellent marketing. Marketing makes the ports be able to learn what port users need as marketing is the only one which allows for direct contact with port users.

In today's competitive buyer's market, the winner will be the one who maintains the closest relationship with port users, satisfying them quickly and completely. Some of developed nations have aggressive and efficient marketing approach, whereas the marketing is still one of the weakest aspects of ports in spite of notable efforts in most developing countries. To be a third-generation port, a strong, active marketing is indispensable.

Marketing is only a part of the port marketing activity, which means selling. Prior to marketing, however, information and research activities are crucial factors which decide the effectiveness of port marketing actions.

Marketing is not only the diffusion of relevant information to port users about what the port can offer, but also the collection of information from port users about what the port should offer. So, the first task of port marketing is to receive information.

Based on this marketing information, research work should be undertaken so as to make appropriate marketing strategies and fix marketing targets. This is the second task of port marketing.

Much of marketing information which is needed for research is normally obtained when carrying out market promotion. Similarly, research works would be less significant and reliable if it were not done by the people who had direct contact with port users, especially who undertake market promotion actions. (UNCTAD, 1992, PP 32-33)

(a) Information collection

The first task for port marketing is to gather all relevant information. It is very important to get exact and sufficient information for efficient marketing since out-of-date information could lead to wrong decisions.

The question of how to get all the required information is crucial. There are two ways of gathering information, direct information collection and indirect information collection. Typical method of direct information collection is paying visits to the source of information. Before visit to an actual and potential customer, precise information collection objective should be set out and plans made.

Indirect information collection implies all sources of information such as the press, reports and publications, formal and informal interviews etc.

What information should be collected ? It can be summarised as following:

- information about all actual and potential port users, especially big clients regarding their business evolution; their medium and long term plans, their organisation and their expectations and difficulties regarding international transport.
- information about technological and economic changes in maritime, inland, waterway and air transport as well as in ports, the evolution of multimodal transport, the new forms of containers, the EDI system, new types of vessels or other transport

media, the advantages, shortcomings, cost and the pace of these changes, also new technological changes in port industry such as cargo handling, navigational services, information processing etc.

- information about economic, commercial and industrial changes affecting cargo volume, origins and destinations.

- information about the situation and development in other ports. Port marketing information on other ports should be as complete as possible, especially for competing ports.

The port community itself is in fact a very rich source of information. Information about competing ports, their tariffs, inland transport charges, their facilities and service performance etc., can generally be obtained from freight forwarders, multimodal transport operators and shipping agents in the port area. (UNCTAD, 1992, PP 33-34)

(b) Research work

Regarding research work, market segmentation is the most important thing which ports should undertake. Marketing can be segmented to meet the requirements of different types of users and traffics, such as container shipping, ro-ro services, dry and liquid bulk traffics. In relation to market segmentation, marketing requirements are ascertained in relation to bodies such as shipowners, shippers and other relevant organisations. In liner shipping, marketing work is likely to be carried out especially in relation to shipowners and shipping agents, but also taking into account large shippers or groups of shippers who may be able to influence port routing.

Port marketing is not only a once for all activity to win new cargo traffic, but also to consider the probable future of the port's existing traffic. It must consider likely changes in cargo volumes, traffic origins and destinations, cargo handling and possible decline in an activity or activities at risk.

If marketing action cannot help to save cargoes at risk, there is a need to consider the impact of the loss of such traffic on the utilisation of port facilities, and on the trade of the port. Then one must consider whether the location and nature of the port make it potentially suitable for adaptation - with appropriate marketing, and possibly with new investment - for new types of port trades.

Various factors can affect the use of ports and the scope for port marketing. It is useful to examine the situation systematically, to help ensure that all relevant factors are considered. One way of doing this is to analyse the factors affecting port traffics in relation to the following categories:

- the consequence of technological change in the transport for ports.
- developments elsewhere in the transport system, and their implications for a port.
- the effects of commercial and industrial changes affecting cargo volumes, origins and destinations.
- the effects on a port of the policies of government and other institutions.

1. The consequence of technological change in the transport for ports.

In the maritime transport sector, changes in transport technology and economic changes are often the consequence of a desire to reduce vessel turnaround time and to reduce cargo handling costs. The result for such improvements has resulted in changes in the methods of shipment and changes in the types of vessels used.

An important consequence of this is that there has been a substantial increase in the freedom of shipowners to choose which ports they use. This increased freedom has in its turn, encouraged port authorities to increase the extent of their marketing activities.

Port routing has become much more flexible in recent years, and there is an evident need to understand the norms used by a shipowner to assess the merits of different

port routing possibilities. Naturally, shipowners are interested in minimising their costs, seeking to lessen the number of port of calls, and seeking to reduce port call time at individual ports.

Various factors can cause delays in ports, but especially customs and documentary problems are serious ones. There are some ports that specific deep-sea shipowners have refused to service directly precisely for this reason, preferring to tranship. The reliability of service at different ports this may be of considerable importance, especially where tight vessel scheduling is necessary for commercial reasons. This is also a matter affecting port marketing for ports with a record of prompt and good service, will be relatively better placed to be chosen as port of call.

Indeed, in optimising their choice of ports of call, shipowners are not only concerned with reducing their voyage time and costs but also with the revenue implications of calls at different possible ports. Other things remaining equal, direct calls are more likely to be made at port generating additional cargo and revenue.

2. Developments elsewhere in the transport system and their implications for a port. New developments or the expansion of existing facilities at other ports may affect a port's own traffic, and their implications on port marketing need to be considered. As far as physical port developments at other ports are concerned, it is necessary to consider their magnitude - this including magnitude in terms of capacity to accept different sizes and types of vessels.

It is necessary to consider the types of traffic which other port developments may attract; how far such port developments are likely to compete with the port's own traffic, the likely strength of competition from the new port facilities, and indeed the likely strength and weaknesses of such new port facilities from a port marketing standpoint.

Port development means not only physical developments at other ports but also commercial developments which may or may not have related physical aspects. It is necessary to monitor the progress of such developments by other ports, for instance, the development of terminals for different types of traffic and commodities, the establishment of inland container depots or of through-transport services.

3. Effects of economic, industrial and commercial changes on cargo volumes, origins and destinations.

Various factors cause changes in the direction of a country's exports or imports, and in their destinations or origins. Changes in the availability of raw materials and primary products can have a major effect on port traffic and the demand for port facilities. For example, a discovery of oil can have a direct impact on port traffic, and indeed a port can become a new oil-petrochemical exporter.

In many countries, new import substituting industries are being developed thus reducing the tonnage of traffic in the importing port, and in the foreign exporting ports. Cement and steel are examples of products now produced in many countries which had previously imported them. If the imports formerly moved on liner services, these may cease to call in the former exporting country's ports.

Conversely, new industries may not only replace former imports, but may also develop as exporting industries. When there is a reasonable increase in the volume of exports, then it may help to encourage outwards shipping services. Clearly, this would be a subject of potential interest to a port in a country which is developing new exports of manufactured goods.

4. The effect on a port of the policies of government and other institutions.

Port planning and development policy may be government-controlled, whether as part of a policy to optimise the use of scarce resources, or to encourage port development in regions where it can stimulate economic growth.

Government shipping policy can affect the use of ports and the scope for the successful marketing of ports. For instance, in certain countries, cabotage laws have existed for protecting national flag shipping in relation to cargo movement between ports along a country's coastline. In practice, this has sometimes resulted in container ships trans-shipping at major ports in other countries, then cargo being brought by feeder ships to the country's ports, thereby legitimately avoiding the country's cabotage laws. (UNCTAD, 1992, PP 35-38)

4.3. Guidelines for promotion activities in port marketing

Before the implementation of actual promotional activities, we need to specify when, where the marketing should be carried out and who should be the marketing target.

Firstly, the timing of port marketing is very important in marketing point. When the shipowners feel necessary or desirable to change port of call, it can be a best chance for marketing. But shipowners are not often very interested in change of port due to the well-built relationship between shipowners (or agents) and port personnel.

Secondly, port should be able to identify its marketing range and satisfy the selected target users' needs. There is a need to be selective, to ensure that marketing aimed at securing new business is carried out only in relation to appropriate traffic, which means traffic that can be attracted and is worth attracting. It is pointless to carry out marketing work which has only a very small chance of success or to secure traffic which will not be sufficiently profitable.

A useful starting point for marketing target setting is to analyse, by comparing the port with competing or other ports, the port's underlying advantages and disadvantages, the factors which may provide opportunities for its growth, and also such negative factors as may affect the future development of a port's traffic.

The SWOT (Strengths and Weakness, Opportunities and Threats) approach can be a nice tool which draws attention to possible problem areas and possible areas and opportunities for growth. (UNCTAD, 1992, P 39)

- 'Strengths' is meant by factors which give a port an inherent advantage in its ability to attract ships and cargo. Strengths may relate to attractive location in conjunction with shipping routes and the origins and destinations of cargo, they may be physical (e.g. depth of water) or institutional, they may relate to the availability and performance of manpower, and so on.

- 'Weaknesses' is the opposite of the strengths, for instance, distance from shipping routes and areas of cargo origin & destination. Weaknesses may also include relatively high levels of port charges, and/or other charges payable at a particular ports as compared to competing ports.

- 'Opportunities' for a port may arise from a substantial increase in the volume of trade from/to its hinterland, thereby increasing the scope of attracting direct deep-sea calls by vessels. Opportunities may arise from improvements in inland transport infrastructure servicing a port, and from decreases in inland transport costs.

- 'Threats' from a port marketing standpoint may include the impact of the growth of vessel size, larger vessels may be unable to use a port, or may change their port routing for economic reasons - to reduce the number of port calls, and/or to serve

larger hinterlands. Threats may also include expansion at competing ports which may seek additional traffic, to utilise their increased facilities.

The SWOT approach is potentially very useful, but competitiveness and other factors considered in such an approach are variable, and it is necessary to keep the analysis updated. On the basis of the research done, when the targets have been set and plans made, port marketing comes to its final stage, promotional action, which targets should be reached, plans realised and information obtained.

Promotional action can be directly concerned with marketing tools, which are those elements that will have an influence on the 'sales' of the product, or services in the case of seaports. The influence of those tools will differ from one country to another. Therefore, it is necessary to find the appropriate mix of all those elements for a given market, so that the results matches the targets aimed at. In the port business, marketing tools can be composed of three *P's*, Product, Promotion and Price. The major aspects of three elements will be presented here. (UNCTAD, 1995, PP 2-5)

1. Product

The product, or port services, is the cornerstone around which all other marketing activities will be designed. The reasons why a port has been chosen for the handling of a certain traffic or for a new investment, is because of what the port can offer. Therefore it is very important that a marketer knows every aspect of his port in the nautical, technical as well as in commercial fields. A client normally makes his choice on the basis of the following elements, excluding for the moment the question of price.

GEOGRAPHICAL POSITION.

It is obvious that the geographical position of the port will play a vital role in determining the volume and the types of cargo which can be handled in the port.

Either the geographical position can be favourable, such as having a wide hinterland in a fertile area, with a dense population and a high level of income, or the geographical position can be less favourable, such as being on an island, with a severe climate, a small population etc. One thing is obvious, nobody can change a port's geographical position. Therefore it is up to the marketer to stress the strong points and to soften the weak points of his product.

NAUTICAL APPROACH.

It defines the capacity of the ship that can be accommodated by the port. This partly determines the competitive position of the port. This aspect will definitely influence the marketing strategy.

HINTERLAND CONNECTIONS.

The hinterland connections are the veins of the port. Whereas ports have developed from pure loading and unloading points to huge distribution platforms, today there is a new notion, VAL, which stands for Value Added Logistics. In a VAL system, a switch is made from a stock-oriented distribution system to an order-operated distribution system. Road, rail, inland waterway and pipeline networks have to be developed and maintained to accomplish a smooth commodity flow, both incoming and outgoing.

SERVICES.

As mentioned earlier, the port is a complex product. Moreover, most of the time the elements that compose the product are not controlled by one party. This means that the final result will depend on the performance of each party involved, whether it is public or private. If the port does not control the whole chain, which is mostly the case, it is advisable to create an overall interest group, what is called a 'port community', to adjust the quality levels, so that the quality of the whole of the services rendered is not brought down by the poor quality of one of the services.

LABOUR FORCE AND SOCIAL CLIMATE.

The labour force is one of the key elements in the performance of the port. If this element is weak, because of low production levels, strikes, high damage levels and theft, the harbour user will try to avoid the port and use a neighbouring port if he has the opportunity to do so.

KNOW-HOW AND TRADITION OF THE PORT.

It speaks for itself that know-how and tradition are built up over many years. This is a sort of reputation of the port which is based on the performance and reliability of its services.

FISCAL ENVIRONMENT.

Port areas should have an attractive fiscal environment in order to attract new business and investments. The port community can lobby government to establish more favourable conditions.

2. Price

Pricing is quite difficult question in marketing. Theoretically the correct price should be indicated by the intersection of the marginal revenue curve with the marginal cost curve. But in reality it is so complicated that it is almost impossible to follow the theory.

Several complicated problems are involved in pricing in an international market and this is the case for seaports which are situated in an international competitive market.

So the port will have to take some pricing decisions into account.

- a. the estimated costs.
- b. competition.
- c. currency.
- d. payment terms.

e. market variables: the demand

Pricing must be dynamic and encouraging. Traditionally, all ports charge harbour dues, partly on the vessel and partly on the goods.

Regarding the vessel, the charges can be linked to the frequency that the vessel calls at the port. Instead of the vessel, charges can be linked to the whole fleet or ships belonging to a certain ship owner or even further all vessels used for a specific trade, even when they belong to different shipowners.

In terms of goods, pricing can be related to the amount of goods brought in, or a different price can be used for different types of goods, for example general cargo or bulk cargo, liquid or solid, etc.

In brief, pricing is a very delicate matter. Especially for a young port in a strongly competitive environment, attractive pricing can offer advantages as long as it goes together with the rendering of good service. (UNCTAD, 1995, P 6)

3. Promotion

With an excellent product, namely a well-equipped port with a safe and deep nautical access, modern handling gear and a highly productive labour force, clients need to be aware of the port's existence. Action is needed to raise this awareness.

In the past, the port may have had a bad reputation because of congestion problems, a less tolerant customs administration, bad hinterland connections and severe union actions. Suppose the port community worked day and night to eliminate all those negative points and turn them into positive elements. Clients and potential clients have to be told that circumstances have changed in the port. This requires communication.

Therefore promotion can be defined as communication between the port and various target groups, in order to inform them and influence their attitudes and behaviour towards the port. The following elements shows the different types of promotion tools. (UNCTAD, 1995, PP 7-12)

ADVERTISING.

The international advertising programme of the port is determined by the goals of the port, and the international environment. For example, if the goal of the port is to attract container cargoes, this means the team has to analyse which media are the most appropriate to use for advertising. (for instance, which magazines? which radio channel? local television sessions?)

Advertising has to be thought over very carefully:

- the message has to be clear
- use those media that reach the targeted public
- always mention the co-ordinates of the port authority
- carefully select the various possibilities because advertising is not cheap
- professional help in building up an image with logo, slogans can be necessary.

DIRECT MAILING.

Whereas with advertising the marketer also aims at reaching the unknown potential port user, the target of direct mailing is to influence identified potential port users. Direct mailing requires a reliable address list of the potential port users. Direct mailing has the advantage that, more than for advertising, the message can be personalised and far more detailed. The more background information that can be gathered on the potential client, the more precisely the port can address his demands and needs.

INTERNATIONAL SHIPPING EXHIBITIONS.

International shipping exhibitions are outstanding places to encounter a large group of professionals in a very short period time. Participating in international shipping fairs is a marketing tool worthwhile considering. It has the advantage that targeted people can be met in one week, whereas on a business trip it would take more than a month to meet the same people because of the travelling involved.

ORGANISING PORT DAYS.

Another tool to promote the port is organising port days. A so-called port day consists in inviting a group of business people to whom the port makes a detailed presentation. The presentation can be made up of a general introduction on the port, and some other speakers can highlight the strong points of the port in the commercial and nautical, as well as in the technical field. The presentations can be illustrated by showing a movie on the facilities, port area and labour.

PERSONAL DIALLING - DIRECT BUSINESS TRIPS.

The previous promotional tools aim at identifying contacts. The personal selling or direct business trip has as a goal that contacts are deepened and hopefully result in signing a contract. A solid contract can only be perfect when there is a mutual understanding by both parties. That understanding starts with going to visit the potential contracting party, and this goes both ways. With a few exceptions of mega-ports like Rotterdam and Singapore, the other ports still have to explain what possibilities they can offer.

REPRESENTATIVES.

As a result of a market analysis, the conclusion may be reached that some markets need more attention than others. This can be when starting up on a new market, as well as in the period when projects are being built up or on a well-established market. Representatives can be appointed in these markets who are locals of its own

nationality. They are the watchtowers sent out on a permanent basis to gather the signals of the market around them.

DOMESTIC NETWORKING.

Domestic networking includes all efforts made to meet local business people who can reveal important information to attract new businesses.

DOMESTIC FAIRS.

A distinction has to be made between the fairs related to domestic transport and the domestic fair in general. For the first category it is almost certain that the port would consider participation. The port's presence is a must for meeting governmental people, the industry and last but not least its competitors. The chances of positive results will rely on the size of the port's internal market. It is important to know beforehand what the port expects to gain as a result of its participation.

ORGANISING CONFERENCE.

Another marketing tool is the organisation of a conference in the port. There are a lot of seminars, conferences, etc. organised nowadays, therefore it is important to organise it in co-operation with a major conference organiser familiar with the industry.

INTERNATIONAL PRESS DAY.

In all efforts a port makes to be heard and seen by the decision makers or people who can influence them, the strength of the press shouldn't be forgotten. The positive article by a reputed professional journalist in the industry can have a far more effective impact than a whole advertising campaign. Therefore, well organised and regular meeting with the press are essential for exposure. When good relations have been established with journalists, the port will get at least the chance of informing them on what really happened to avoid exaggerated press releases.

4.4. Conclusion

International environment that has brought about booming growth of shipping industry in Asia and Korea's strengthened economic power came to call for qualified modern ports so that they might cope with the future generation containerships. In line with the appearance of mega-size containerships, definition of transshipment as well as the function of a port changed and there appeared indispensable necessities for the modern concept ports.

The port of Busan has various advantageous conditions to be a modern concept port or furthermore a hub port of north east Asian region. But even if it might be equipped with ultra modern port facilities, the most fundamental factor in establishing a third generation port is to apply rational method to the management of the port. Fortunately, Korea is undergoing unprecedented deregulation and globalisation process politically and socially, which opened a high way to realise more advanced port management.

In short, in order to construct a commercially viable port or a mega hub port, participating parties from the port policy planner to individual users, should be armed with scientific, analytical attitude and more liberal concept about a port.

Here are the main points this paper recommends as basic conditions for the port of Busan to adopt in order to become a hub port of far eastern Asia with its naturally gifted advantages.

Firstly, the Korean government should induce more private investors in restructuring port of Busan/Kwangyang and constructing a new port in Gadok Island until in the end the government's intervention should be limited to the level as it is done in the other developed countries.

Secondly, to propagate the new concepts in accordance with port construction, management or marketing activities, etc., the port policy makers or port operating authorities must systemize a training or recruiting course for the relating parties. In case of Busan port, Busan Maritime and Port Authority, which is the government's port ruling office, is recommended to set up an independent training body for the education of port related parties in addition with shipping related people.

Thirdly, it is urgently necessary for the port of Busan to organise a specially trained delegation for the marketing and promotional activities. To set up a powerful public relation body is also most desirable. The passive attitude of the port must be changed to active aggression in order to strengthen the competitiveness of the port of Busan in competing with other Asian ports.

Final suggestion is for the port of Busan to open as many sales offices as possible where the dispatched representatives of the port might activate marketing strategies instructed by the port managing authority.

These recommendations are the least but first conditions the port of Busan should pay heed to without which there would be no way for the port to face 21st century's shipping environment.

BIBLIOGRAPHY

Baltic and International Maritime Council (1995). *BIMCO Review 1995*. Copenhagen: BIMCO

Containerisation International (Dec, 1994). London.

Containerisation International (Sep, 1995). London.

Gerhardt, Muller (1995). *Intermodal Freight Transportation, 3rd Edition*. Virginia: Eno Transportation Foundation.

KMI (Jan, 1995). *The Strategy for the Globalisation of Shipping and Port Industry*. Seoul: Korea Maritime Institute.

KMI (Apr, 1995). *The Strategy for the International Logistics Center of Korea in North East Asia*. Seoul: Korea Maritime Institute.

KOCHART (1992). *Port Information Korea*. Seoul: Korea Universal Marine

Korea Shippers' Journal (17 Apr, 1995). Seoul: Korea Transport Press.

Moon, Haenam (1994). *A Study of Developing Competitiveness of the Port of Kwangyang*. Malmö, Sweden: WMU.

Park, Chang Ho (1992). *A Study on the Analysis of Container Physical Distribution System in Pusan Port*. Pusan: Korea Maritime University.

Stuchtey, Rolf W (1990). *Port Management Textbook, Volume 2, General Aspects of Port Management*. Bremen: Institute of Shipping Economics and Logistics.

Stuchtey, Rolf W (1991). *Port Management Textbook, Volume 3, Port Marketing*. Bremen: Institute of Shipping Economics and Logistics

United Nations Conference on Trade and Development (1985 a). *Port Development*. New York: United Nations.

United Nations Conference on Trade and Development (1985 b). *Development and Improvement of Ports, Transshipment Ports*. Geneva: UNCTAD.

United Nations Conference on Trade and Development (1990). *Development and Improvement of Ports, The establishment of trans-shipment facilities in developing countries*. Geneva: UNCTAD.

United Nations Conference on Trade and Development (1992). *Port Marketing and the Challenge of the Third Generation Port*. Geneva: UNCTAD.

United Nations Conference on Trade and Development (1995). *UNCTAD Monographs on Port Management, Marketing Promotion Tools for Ports*. New York and Geneva: United Nations.

Yang, Weon (1993). *Intermodality and Korean Container Transport*. Malmö, Sweden: WMU