

필리핀 항만정책의 경쟁력 제고방안에 관한 연구

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A Study on the Competitiveness Improvement of Port Policy in the Philippines

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Abstract

The purpose of this study is to give a guiding implications to strengthen the competitiveness of port policy in Philippines, considering the inefficiencies in the port infrastructures and management systems in the country, despite its average economic growth of 5-6% and subsequent increment in passenger and trading volumes. These growth figures imply a compelling need for a systemic development plan and impellent actions. This study used the analytic hierarchy process for conducting a port competitiveness analysis and the data on deterrent factors were collected through literature and internal government documents including on-site interviews of the parties involved. The implications of the analysis led the study to conclude the need for adopting an enhanced centralized management, a separate investment and management for ports, a grade classification of nationwide small-, medium, and large-sized ports, efficient incoming systems for port dues, and an advanced mode of financing and investment inducement, among others.

Key words: Philippines, Port, Policy, Improvement, Deterrent factors, AHP.

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I. Introduction

Presently, global ports are severe competitive situation to secure a sustainable cargo throughput with qualified customers and the port management is diversified in the era of digitalized e-Navigation paradigm and autonomous vessel operation environment, etc.

Philippines, a country located in the Western Pacific Ocean, consists of more than 7,100 islands and is divided under three main geographical divisions from north to south: Luzon, Vizayas and Mindanao. There are about 26 Port Management offices and 82 Terminal Management offices, starting from the Port Management offices in Northern Luzon to Port Management offices in Misamis Oriental. Maritime transportation, thus, plays a very important role in transporting cargo and passengers from place to place within the country. However, port development in the Philippines has been lagging behind the growing seaborne cargo and passenger demand. Ports are now becoming a bottleneck of economic development in the Philippines as a whole while also being in part responsible for the socio-economic disparity between urban and rural areas. The Port of Manila, the largest seaport in the country, considered a super-hub port of the country. It handles both domestic and international maritime vessels. Actually, it consists of three main port groups, namely: (i) Manila North Harbor; (ii) Manila South Harbor; and (iii) Manila International Container Terminal. In addition to these 3 ports, there is a nearby private commer-

cial port called the Manila Harbour Centre. The Port of Manila has been recognized as the most widely used port in the Greater Capital Region with utilization rate of 71.6 percent compared to only 2.3 percent and 6.1 percent utilization of Batangas and Subic Ports, respectively (NEDA 2012).

The ports of Batangas and Subic were developed in order to accommodate excess traffic in the port of Manila and promote growth and development in CALABARZON and Central Luzon. However, port users still opt to operate in the Manila Port. This leads to the congestion of the Manila Port and the underutilization of the other two ports in the Greater Capital Region.

This study is based on the recognizing the issues and problems which are widely persisting in the seaborne logistics due to lack of port infrastructures nationwide as afore-mentioned.

The specific background & necessity is as follows. Firstly, port development in the philippines has not dealt with growing seaborne cargo and passenger demand properly. the port landscape has, after all, also altered in many respects. New technologies and strategic developments have led almost automatically to greater port competition, both at port authority level and at the level of companies operating within the various ports. All port players, from authorities to terminal operators and agents, are looking for ways to maximize profits, to maintain or increase market share, or simply to survive. These goals are not so easily achieved in an era of internationalisation of production, consumption and

trade.

Secondly, the government system for port management in the Philippines is far lack of other developed countries. In the past decades, the role of port management system has changed quite fundamentally. It has gradually evolved from being a supervisory and determining capacity to a more subordinate function that often consists solely in improving the required facilities for the various parties involved in port operations.

National and regional authorities are also monitoring these developments closely. A strong and efficiently run seaport can be an important asset for a country or region in trying to improve its economic position. For one thing, port activities generate value added and employment. Moreover, a seaport can be an important pole of attraction for a board range of industries.

This in whole explains why the ports in Philippines should be developed and improved to have competitiveness for attracting goods flows, shipping lines, and infrastructure and industrial investment.

In order to address the outstanding issues and achieve the above objectives, the study employs a system-wide approach to analyze inherent problematic & deterrent factors to suggest an appropriate port development strategic policy. The factors were mostly extracted through the Philippine government internal documents obtained in the course of performing ODA project of Korea named 'Updating of the Master Plan on the Developments of Aids to Navigation in

Philippines '(2016). Meantime, the study also referred to various interviews with the parties involved in port management in the Philippine government and previous literatures to introduce most optimal political solutions and implications.

II. Related Literatures

A reference to the previous study has been made to achieve the objectives of this study.

The paper "Port Governance in Korea" (Dong & Sung, 2016) suggested that Korean ports have passed through a variety of port governance stages with overall port administration and organization in the port management and operations, and this policy have lead to a number of positive influences.

The paper "Port Management, Operation & Competition: A Focus on North Europe" (Meersmant & Van de Voorde) that a strong and efficient run seaport can be an important asset for a country or region in trying to improve its economic positions, and port activities generate value added and employment.

On the paper "A Quality Management Framework for Seaports in their Supply Chains in the 21st Century" (Tran, Cahoon, and Chen, 2011), according to their findings the internal and external focus for seaports and their supply chains is necessary to improve efficiencies and a common understanding and vision for supply chain. Furthermore, the existing knowledge of quality management practices in seaports is under researched as is the understanding of how one

or more organizations quality practices are extended throughout a supply chain to ensure supply chain quality. Also, in terms of the managerial implications the advantages of having quality systems and practices has been repeatedly recognized both in industry and researched as a most economical means for sustainable business growth in a challenging business environment.

On the paper “The Implications of the Growth of Port Throughput on the Port Capacity: The Case of Malaysian Major Container Seaports” (Jeevan, Ghaderi, Bandara, Saharuddin and Othman, 2015), they presented the development of Malaysian container seaports by addressing changes to acreage size and handling volumes during the last three decades and the capacity constraints encountered by major Malaysian seaports. Based on their findings, they found out that major Malaysian ports are experiencing an exponential growth in container trade with the expansion of port capacity following trade growth and need effective strategies to reduce the operational pressures of Malaysian seaports.

Additionally, if seaports are unable to improve their seaport capacity, it will cause some other disadvantages from different dimensions especially congestion, long turn-around time not only for vessels but also for containers and also affecting the efficiency in the supply chain.

The study on “Improving the coastal line passenger traffic management system by applying information technologies” (Rathman, Tijan and Jugović, 2016), found out that the introduction of integrated information system means the develop-

ment of mechanisms and tools for managing business, the availability of information needed to manage the process of service execution, more efficient and cheaper process of reservations and ticket sales, increased service quality, increased ability to control the use of subsidized tariffs, and consequently, an increase in revenue from ticket sales. Furthermore, for the national economy and society, the computerization of public transport services means an efficient and controlled transport subsystem as an important factor in the efficiency of the overall national economy, the ability to monitor development trends and the use of performance indicators as instruments of strategic management.

The study on “Improving Port Terminal Operations through Information Sharing” (Olesen, Dukovska-Popovska, Hvolby, 2012) focused on improving the terminal operations by reducing waste and lead-time in a container terminal through information sharing and coordination. In their findings the lack of planning and information flow is a large contributor to non-value adding activities in the terminal. However, they concluded that to improve the terminal operations further the placement of the container in the storage area should be done according to departure and destination and not as now only by owner of the container. By placing the containers according to a schedule, the amount of rework and non-value adding activities would be reduced. In general, it can be said about the three suggestions that they reduce some of the most obvious non-value adding ac-

tivities, but in general just presenting the concept of identifying activities as being value or non-value will bring a new positive way of thinking to the terminal.

According to the paper "Strategic Planning for Port Development: Improvement of Container Transit from the Iranian Southern Ports Terminals" (Yousefi, 2013), the researcher concluded that the improvement of the Iranian container transit from the International transit corridor can be carried out by using the advanced equipment for handling operation at the container terminals; it causes to reduce the time vessels spent in the ports. Also, it can be observed that the use of an optimum strategic planning at the container terminals may cause to develop the efficient scheduling of the equipment in order to increase the productivity of the container terminals.

The study on "Port Competitiveness and Ecological Impact of Logistics Activities: A Case Study of the Port of Ploce" (Debelic, Vilke and Milanovic, 2016) presented to develop a framework that examines ecological impact of logistics activities and port development activities in general in order to evaluate possible competitiveness boost strategies in practical situations when there is ecologically sensitive and environmentally fragile area around the port. They concluded that in order to improve its own competitiveness, port development immanently implies parallel and simultaneous development of multimodal transport routes along the transport chains taking into account environmental standards, ecological diver-

sity as well as complexity. Moreover, Relationship of the port of Poce with its local surroundings is of particular importance and needs special attention in order to achieve integrated port development harmonized with the local community expectations as well as requirements for smart and green competitiveness boost. The key factor of success is stakeholder's co-operation, not only on commercial basis, but also on general social.

The paper "Evaluating the Competitiveness of Container Terminals in Northern Vietnam from Perspective of Shipping Lines" (Thi-Yen Pham, et. al., 2016) carried out empirical analysis of container terminals. The study used survey methodology by the Delphi panel with the several criteria factors of closeness to main trunk roots, number of berths, storage space, port cost, etc.

Improving the internal and external elements in the ports in the Philippines can greatly refine its process. At present, in terms of external factors, there is a lack of infrastructure in ports in the country due to financial problems. Another factor to consider is that the country has not adapted information systems yet. The country is still manually selling tickets to passengers. However once they change their conventional method there will be more efficiency in their process, and there will be cheaper process of reservations and ticket sales, an increase of service quality, etc. and by doing so there will be an increase in revenue.

III. General Status of Logistics & Port Infra & Management

1. Logistics & goods flow

As of 2017, Manila Port utilization rate is about 60.12% meanwhile, represents that some 48,900 containers are inside terminal while 32,600 container slots remain vacant. With container gate-outs almost reaching 8,000 container outs per day, the utilization rate is expected to hover around the 55-60% utilization rate. (PPA 2017)

Table 1 shows the total number of Shipcalls, Cargo Throughput, Container Traffic(in TEU) both domestic and foreign. There is a total of 446,263 shipcalls, 254,069,317 Cargo Throughput and 7,060,253 Container Traffic.

Table 1. Shipcalls, Cargo Throughput and Container Traffic(Unit: TEU)

	Total	Dmstc	Frgn
Shipcalls	446,263	434,380	11,883
Cargo Throughput	254,069,317	102,533,513	151,535,805
Container Traffic	7,060,253	2,865,312	4,194,941

Source: PPA Statistics 2017

Table 2 shows the total Passenger Traffic and Roro Traffic in the country both domestic and foreign. With a total of 72,051,945 Passenger Traffic.

Table 2. Passenger Traffic for Cruise Ships

Unit: Person	TOTAL	DISEM	EMB	Cruise Ships PAX
Pssngr Traffic	72,051,945	37,090,295	34,910,926	50,725

Source: PPA Statistics 2017

Table 3 shows Roro Traffic in the Philippines both inward and outward. With a total of 5,901,330 RoRo traffic.

Table 3. RoRo Traffic(Unit: Person)

	Total	Inward	Outward
RoRo Traffic	5,901,330	2,885,005	3,016,325

Source: PPA Statistics 2017

Meantime, Philippines has approximately 2,451 harbors including 1,369 public harbors, 423 civil harbors and 421 fishing ports. In 2011, the total number of vessels calling at ports is 330,577 for domestic vessels and 10,878 for overseas vessels. Yearly revenue of harbors in 2017 is reported at 85.24 trillion pesos which is higher by 2.75% compared to that of 2016.

2. Port Infra & Management Systems



Fig 1. Port Management Offices

Source: PPA Statistics 2017

The Philippine Ports Authority (PPA) had been playing a fundamental role in developing, managing and administrating all Philippine ports in a uniform manner since 1974 but this port management system underwent drastic changes in 1990. Since 1990, the Cebu Ports Authority(CPA), the Subic Bay Metropolitan Authority(SBMA), the PHIVIDEC Industrial Authority(PIA), the Cagayan Economic Zone Authority(CEZA), the Bases Conversion and Development Authority(BCDA), the Regional Port Management Authority(RPMA)-ARMM and local governments have been taking charge of port development and management in their own regions. PPA and CPA are under the umbrella of DOTr, but other relevant organizations are not. This kind of port administration system often leads to imbalanced and inefficient port development and management as a whole.

There are 26 Port Management Offices in the Country and 82 Terminal Management Offices. Port Management Offices, Port Management Offices is the PPA's administrative and operational arm. The PMOs which oversees the Base ports and Terminal Management Offices (TMOs). Terminal Management Offices refers to an administrative unit overseeing the operation of a terminal in delivering frontline services.

Figure 1 shows the locations of the port management offices in the Philippines. The ports in Philippines are facing many challenges in order to achieve an efficient system. The major issues obtained from the study are summarized as three points of view, i.e. planning, management & operation and investment & financing as follows.

3. Port Planning

While several public port development bodies have been organized to manage a port(s) individually, there is a lack of coordination among the port development plans of these organizations. Moreover, the planning lacks a national focus. This might result in an inefficient national port network and/or redundant investment, one of the deterrent factors in this category are lack of development strategies for small-scaled ports since generally speaking, the revenue generated by the operation of a small-scale port is small. Thus, port authorities/public port development bodies, which are required to be financially autonomous, have little incentive to develop such ports. The government also cannot develop small-scale ports due to budget constraints. As a result, the strategic development of small-scale ports has not been carried out. The other deterrent factor is insufficient RO/RO route development since RO/RO routes, which can enhance the intermodal transport network, are not fully developed as lots of small vessels such as motorized bancas & boats are unable to carry vehicles safely and are not a viable alternative to RO/RO routes.

4. Port Management and Operation

One of the causes of insufficient nationwide coordination in port planning is the lack of institution to coordinate port development plans in terms of the establishment of an efficient nationwide maritime transport network at planning

stage. Such kind of institution is required to be established.

Inefficient port operation also can be seen in some ports partly due to the lack of proper equipment as well as unsuitable use of port facilities.

Meantime, domestic port charges are set at a low level. This fetters not only sound finance of port authorities & public port development bodies but also the mechanization of cargo handling which can improve the cargo handling efficiency.

5. Investment and Financing

Under the budget constraints of the national and local governments, investment strategy, which takes into account possible source of funds including private funds, for future nationwide development has not been established yet.

Some public port development bodies find it difficult to finance future development projects due to insufficient revenues, and the private sector is reluctant to invest because insufficient incentives have not been offered although the private investment in port development is greatly desired,

IV. Port Competitiveness Analysis

In order to ascertain the port developing level of the philippines, this study tried to analyze the port competitiveness based on the following macro port infra data.

As shown on the above table which explains

the representative main ports of the Asian countries nearby in Philippines, the general port infrastructures such as berth number & length, max. draft, quay crane number and cargo throughput capacity in Philippines are in the most inferior states comparing to the adjacent neighboring countries of Indonesia, Malaysia, Singapore and Korea.

Table 4. Port Infrastructures Status

Anal Items	PHL (MNL)	MAL (PKFZ)	IND (TPR)	SGPR	KR (BSN)
Berth No	6	30	13	67	27
Berth LEN (m)	1,700	8,100	2,800	20,098	8,750
Max Draft	13	17	14	17	17
Quay Crane No	13	93	26	224	95
CAP. (Mill TEU)	1.5	17.6	8.28	50.00	19.37

Source: Singaporepsa.com, mictweb.com, worldportsource.com, pka.gov.my, lpj.gov.my, pncport.com, bptc.co.kr

Note: 1)Singapore is including terminals of Tanjung, Keppel, Brani, Senbawang, Pasir 1, 2, 3, 4 & 6.
2)Tanjung Priok is including terminals of Jakarta & Koja
3)Pusan is including Shinsundae, Kamman & New Port

1. Analysis Factors and Data Collection

There are lots of general factors to affect the

port competitiveness, and In this study, the factors are determined by employing the Delphi method based on criteria deriving from literature review and brain storming session.

Table 5. Questionnaire Configuration

place of dist.	nbr of dist.	col-lection	effec-tive re-sponse	invalid-ity re-sponse	effective re-sponse rate
Container Terminal	33	30	30	3	90.90

Table 5 shows a result of questionnaires obtained from total 30 effective Delphi panel which was created including 10 experts from both local and foreign shipping lines having more than 10 years of working experience in Korea. With a purpose of discarding overlapped and inadequate factors, supplementing missing factors, and achieving unification of all the experts, the criteria was examined several rounds by face to face, phone call and email. In consequence, such 30 factors were chosen as natural factors, closeness to main trunk route & hinterland, berth number & restrictions, available equipments, storage yards, IT system, service schedule, congestion, port charges & transportation costs, CIQ procedures and administration regulations, etc.

2. Analysis Method and Model

This study used the Analytic Hierarchy Process(AHP) as analysis tool. The AHP considers a set of evaluation criteria, and a set of alternative options among which the best decision is to be made. The AHP generates a weight for

each evaluation criterion according to the decision maker’s pairwise comparisons of the criteria.

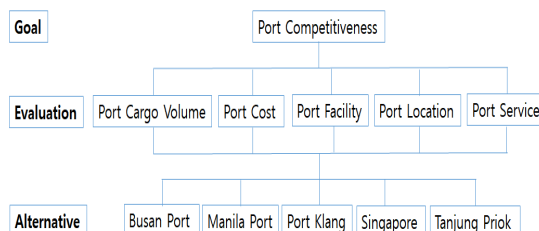


Fig. 2. Model of Hierarchical Structure

The above criteria were chosen as most popular factors to be used in analysing port competitiveness, and all the criteria factors were questioned by the expert Delphi panels as explained the above paragraph. The higher the weight, the more important the corresponding criterion. Next, for a fixed criterion, the AHP assigns a score to each option according to the decision maker’s pairwise comparisons of the options based on that criterion. The higher the score, the better the performance of the option with respect to the considered criterion. Finally, the AHP combines the criteria weights and the options scores, thus determining a global score for each option, and a consequent ranking. The global score for a given option is a weighted sum of the scores it obtained with respect to all the criteria.

3. Factor Evaluation

In order to compute the weights for the different criteria, the AHP starts creating a pairwise

comparison matrix. The matrix is a $m \times m$ real matrix, where m is the number of evaluation criteria considered. Each entry a_{jk} of the matrix represents 1 the importance of the j th criterion relative to the k th criterion. If $a_{jk} > 1$, then the j th criterion is more important than the k th criterion, while if $a_{jk} < 1$, then the j th criterion is less important than the k th criterion. If two criteria have the same importance, then the entry a_{jk} is 1.

Table 6. Weight of evaluation factor

Evaluation factor	weight	Ranking
Port Cargo volume	0.251	1
Port Location	0.210	2
Port Cost	0.207	3
Port Service	0.193	4
Port Facility	0.139	5
CR = 0.01		

According to the analysis of the weight of the 5 itemized evaluation factors, port cargo volume shows the most important in the port competitiveness, then port location, port cost, port service and port facility in order respectively.

4. Analysis results

This study selected the representative ports of Singapore, Port Klang in Malaysia, Tanjung Priok in Indonesia, Busan in Korea and Manila in Philippines since they are all located in geographically neighboring countries and considered to be good model in pursuing port development policy in Philippines.

The empirical analysis as shown on the table 7, Singapore is on top at the port cargo volume competitiveness, and then Busan, Port Klang, Manila Port and Tanjung Priok respectively.

Meantime, Table 8 explains Singapore is most advantage in the terms of port location, then Port Klang, Busan Port, Tanjung Priok and Manila respectively.

Table 7. Port Competitiveness in Port Cargo Volume

Evaluation factor	Alternative	weight	Ranking
Port Cargo Volume	Singapore	0.422	1
	Busan Port	0.264	2
	Port Klang	0.162	3
	Manila Port	0.089	4
	Tanjung Priok	0.064	5
CR = 0.01			

From the analysis, it is understood Philippines is non-competitiveness in light of the geographical port location as the country located at just intermediate position between the ports of Busan and Singapore

Table 8. Port Competitiveness in Port Location

Evaluation factor	Alternative	weight	Ranking
Port Location	Singapore	0.382	1
	Port Klang	0.226	2
	Busan Port	0.221	3
	Tanjung Priok	0.098	4
	Manila Port	0.072	5
CR = 0.01			

Table 9. Port Competitiveness in Port Cost

Evaluation factor	Alternative	weight	Ranking
Port Cost	Manila Port	0.271	1
	Tanjung Priok	0.258	2
	Busan Port	0.187	3
	Port Klang	0.176	4
	Singapore	0.109	5
CR = 0.00			

Table 9 shows Manila Port is most competitiveness in terms of port cost, then Tanjung Priok, Busan Port, Port Klang and Singapore respectively.

Table 10. Port Competitiveness in Port Service

Evaluation factor	Alternative	weight	Ranking
Port Service	Singapore	0.362	1
	Busan Port	0.295	2
	Port Klang	0.172	3
	Manila Port	0.092	4
	Tanjung Priok	0.080	5
CR = 0.00			

Table 10 means Singapore has the most competitiveness in light of port service, then Busan, Port Klang, Manila Port and Tanjung Priok respectively.

Table 11 show the competitiveness of port facility in which Singapore is also on top position, then followed by Busan, Port Klang, Manila and Tanjung Priok of Malaysia respectively.

Table 11. Port Competitiveness in Port Facility

Evaluation factor	Alternative	weight	Ranking
Port Facility	Singapore	0.412	1
	Busan Port	0.262	2
	Port Klang	0.185	3
	Manila Port	0.098	4
	Tanjung Priok	0.063	5
CR = 0.01			

Finally, the table 12 explains an comprehensive competitiveness of the port in conjunction with the aggregate factors in which the singapore is on top, then followed by Busan, Port Klang, Manila and Tanjung Priok respectively.

Table 12. Synthesis with respect to Container Port Competitiveness

Alternative	weight	Ranking
Singapore	0.336	1
Busan Port	0.245	2
Port Klang	0.181	3
Manila Port	0.125	4
Tanjung Priok	0.114	5
CR = 0.01		

V. Improvement Suggestions

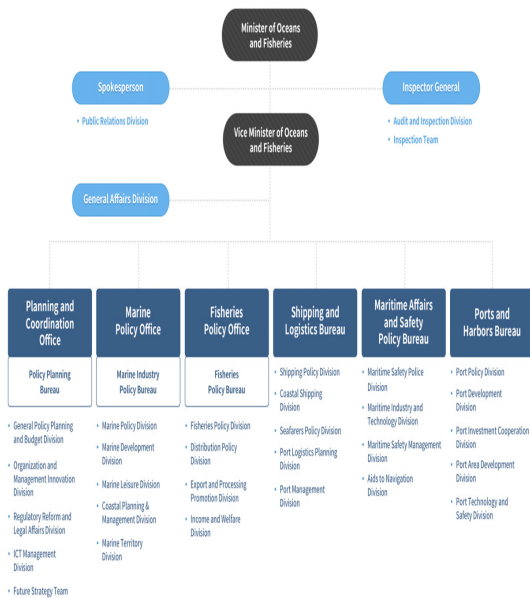
It is suggested that the port governance by the administration might be essential in order to pursue an enhancing the port management and operation. Therefore, overall governance structures In Korea would be a good political model in developing port infrastructures in Philippines.

1. Port Governance in Korea

Under the auspices of MOF, a public administrator of the country's ports, as illustrated in Fig. 3, the 12 local branches have the authority to control the nation's 54 international trading and coastal or local ports mentioned in the previous section.

Port administration(KMPA), under the auspices of the Ministry of Construction and Transport(MOCT), controlled the ports up to 1996.

Fig. 3. Administrative Structure of MOF



Source: MOF(2017)

In the early time, the Korea Maritime and Port administration(KMPA), under the auspices of the Ministry of Construction and Transport(MOCT), controlled the ports up to 1996. Thanks to the

importance of maritime industry, Korean government enlarged KMPA (a public hierarchy lower than the ministry level) into the ministry level the Ministry of Maritime Affairs and Fisheries (MOMAF) with 7 Bureaus in house; at the same time, MOMAF became an independent ministry from the MOCT.

In addition, the Korea Container Terminal Authority(KCTA) was established to promote construction and management for container ports. The independence of MOMAF from MOCT gave the former the right of development and management related to shipping, ports and associated facilities. Consequently, the port industry enjoyed the proportionally increased budget allocated from the Ministry and utilized it according to the established plan and policy.

For the purposes of decentralization and promoting competitiveness, the government has gradually handed over its right of port administration to local - regional or city - governments. Thus, Busan, Incheon, Ulsan and Yeosu-Gwangyang became an independent entity in 2003, 2005, 2007 and

2011, respectively. Eventually, the port industry faces with the concept of privatisation or its pseudo form of more-private-participation in the sector.

In the meantime, the government controlled KCTA has fulfilled its function and has disappeared upon the establishment of Yeosu-Gwangyang Port Authority(YGPA) in 2011 and the rest of the businesses were transformed to each port authorities and to government.

Also, the manpower in KCTA was transferred to YGPA. On the other hand, under the pressure of port governance, the MOMAF came into disuse in 2008 after change of government in Korea and instead integrated into Ministry of Land, Transport and Maritime Affairs. Again, due to a presidential election pledge of current government, it re-established and changed its name into Ministry of Ocean and Fisheries in 2013.

Table 3 show the brief history of administration evolution took place in Korea over the years.

2. Governance Suggestions in Philippines

Philippine has various small, medium and large ports nationwide, a certain simplified classification would be needed for an efficient management & improvement. Although the private investment in port development is greatly desired, the private sector is reluctant to invest because insufficient incentives have not been offered.

In order to improve the deterrent factors mentioned as above, It can be summarized that on the terms of planning, an establishment of comprehensive nationwide port development plan is needed to be coordinated with the plans of various port development bodies, and on the terms of management & operation, a modification of port administration is required including the establishment of investment strategies for various kinds of port development projects.

3. Considerable Factors for Planning

In order to achieve an efficient development plan, establishment of investment strategies for various kinds of port development projects are required.

1) Utilization of Hinterland

Globalization of the economy has led to a deeper interrelation of the economic and social activities of individual countries. It is assumed, therefore, that manufacturing industries at economic zones and/or service industries in densely populated areas will lead the Philippine economy in the futures. One of the most important factors in framing the future society of the Philippines is GDP & population. For the base case, 5-6% annual growth rate of GDP and 1.5% of population is adopted by taking into account of the past years' historical data, the nationwide port cargo will increase 6-7% annually. Therefore, planning for efficient utilization of port area would be one of the vital considerable factors.

2) Considerations for Classification

In order to formulate nationwide efficient maritime trunk routes, the rationale/importance of individual port development should be examined in terms of the following principles, i.e. the ports developed as international gateway port, principal international trade port, major domestic container port and Major port.

Currently Manila and Batangas is main international gateway ports in capital region. In order

to promote regional development at the middle and south part of the Philippines, the strategic development of international gateways at Visayas area, North Mindanao area and South Mindanao area is required.

It is also estimated that about 60% of domestic container cargo are carried by long distance RO/RO ferry vessels with passengers, while other container cargo is carried by geared vessels. The transportation cost of the latter is cheaper than that of the former. The vessel speed of the latter, however, is slower than that of the former, and extra time is required for cargo handling. Thus, it is necessary to introduce high speed container vessels and install quayside cranes to enable more efficient container handling at berths. Healthy competition between these two transport modes is expected in future.

Meantime, while the volume of break bulk cargo will increase steadily in the coming 20 years, bulk cargo will increase rapidly. However, the majority of bulk cargo has been handled at private terminals. On the other hand, almost all break bulk cargo and some bulk cargo has been handled at the same berth in public ports due to limited port facilities. It is expected that this mixed cargo-handling system will continue in many public ports, since these cargo volumes are not expected to greatly increase in future. Thus, it is proposed that the public sector develop "multi-purpose berths" to handle these kinds of cargo in accordance with the demand for ports. Since the great contribution of the private sector is expected, in particular in the field of the im-

provement of bulk cargo handling operation, public and private partnerships which coordinate / enhance private investment in cargo handling equipment' s /warehouses should be pursued.

In order to meet the cargo demand with minimum negative economic externality related to land traffic congestion, it is proposed that the expansion of existing ports in Manila be avoided as much as possible for the moment. Thus, the non-consumer goods such as industrial materials might be handled outside NCR. It is proposed that Subic Bay port and Batangas port be developed intensively for this purpose.

There are also two major north-south intermodal corridors in the Philippines, i.e. Pan-Philippine Highway and Strong Republic Nautical Highway at present. It is proposed that the RO/RO ports along the major corridors be strategically developed.

Small and medium scale port development to formulate maritime transport bases to support regional society is another goal of the planning. Ports which are not applicable to the principles should also be developed steadily in accordance with their demand.

While social economic development often requires the concentration of resources in a specific area, it is desirable to pursue the development of the nation as a whole.

In order to resolve these two contradictory issues, it is necessary to promote "National Dispersion through Regional Concentration" through the formation of an effective intermodal network and elicitation of regional growth potential.

Thus, it is proposed that RO/RO ports which enhance the inter-regional and intra-regional mobility of people and goods should be strategically selected and developed.

An improved transportation system can not only secure a more stable daily life in remote islands but also contribute to economic development. Thus, for remote islands that have a population of more than 5,000 in 2024 and existing port facilities, RO/RO ports should be strategically selected and developed considering the growth potential of remote islands as well as the accessibility to population centers in the main islands and other islands.

Improving accessibility and supporting the production activities such as fishery in remote islands without port facilities and other isolated areas can reduce regional gaps and contribute to poverty alleviation. Thus, it is proposed that social reform support ports should be strategically developed to form maritime routes linking the isolated area / island and population center, to support the establishment of population centers within isolated area as well as to upgrade existing shipping services.

4. Institutional Reform on Port Administration

1) Establishment of National Plan for Port Development Council (NPPD Council)

In order to avoid inefficient development of the port network and / or duplication of investment, it is necessary to prepare the National Plan for Port Development (NPPD), which is co-

ordinated with the plans of various port authorities/public port development bodies.

2) Simplified/Concentrated Role of PPA

Generally, a port authority has roles as a planner, a landowner and a regulator but not an operator. According to the Medium-Term Philippine Development Plan 2001-2004 (MTPDP), PPA has a dual role as regulator and operator. It is recommended the regulatory function be transferred to an independent regulator. PPA should stop collecting 10% of the cargo handling tariff from the terminal operator and instead lease the port facilities to the terminal operator. In other words, PPA should retain its regulatory function and divest itself of the operational function. This would generate competition among terminal operators and lead to the improvement of port service.

3) Establishment of Regional Port Authority and Philippine Port Administration Agency

According to MTPDP, commercial decision-making, planning, and management of port operations shall be progressively decentralized. This direction should be pursued. When all RPAs are established and begin to develop their own ports in view of both the growth of their own ports and the development of the hinterlands related to their ports.

5. The Improvement of Port Management & Operation

Except for major ports with large volumes of cargo, cargo handling efficiency is not satisfactory. Poor cargo handling efficiency is mainly related to the cargo handling contract system, which does not give enough incentive to increase productivity. Terminal operators at domestic trade ports do not have sufficient financial capability to invest in equipment due to limited revenue. Thus, following policies should be implemented.

1) Assistance in Procuring Cargo Handling Equipment (Fund, Lease, etc)

Terminal operators in the Philippines do not have adequate financial sources to procure new/extra large-scale equipment. To expedite mechanization, establishment of fund for cargo handling equipment by slightly raising the cargo handling charge need to be examined.

2) Strict Monitoring of Terminal Operator's Productivity

Terminal operators report their efficiency to port authority/public port development bodies. However, the contents of the reports are sometimes inadequate. Thus, the criteria of evaluation should be actually achievable and satisfactory

3) Setting the Port Charge

To improve berth utilization and cargo han-

dling efficiency, and promote ports and economic activities in the hinterland, following tariff settings should be introduced.

Unit of port tariffs, especially dockage at berth/anchorage and usage fee, should be changed from a daily basis to hourly basis, and escalation fee for longer berthing vessels should be introduced as well.

If a port has plural facilities and sufficient cargo volume, "lease agreement" for specific berth should be introduced. The agreement includes the setting of "fixed fee" against the existing cargo handling volume for leasing facilities, and "variable fee" against the incremental cargo handling volume.

Present tariff levels for both domestic ships berthing and domestic cargo handling are set extremely lower than that required for financially viable operation. Appropriate port tariff setting will attract private investors & financial an independent.

6. Other Relevant Policies

1) Simplification of Port Procedures

Documents related to port procedures are not integrated. A system to integrate documents on port procedures needs to be introduced, and DOTr should take the initiative in establishing this system.

2) Promotion of Security Measures for Port Facilities

One of the issues to be tackled is to secure

the port security standard based on the provisions of the SOLAS convention, and the other is to cope with the United States' CSI and 24-Hour Rule with introducing risk management system in port security.

3) Modernization of Port Statistics

Effective national port system planning, cargo volumes from all ports including port authorities & public port development bodies need to be compiled and properly classified.

4) Implementing Navigation Safety Measures

Implementation of navigation safety measures of VTM/VTS including development of navigation aids, enforcement of rules and regulations should be strengthened to avoid a number of sea casualties.

5) Investment and Financing

Under the very tight financial situation of the national and local governments in the Philippines, financial strategies for public port development should be urgently taken to accelerate necessary port investment as effectively as possible.

Port investment must be appropriately shared between the public and private sector, and all available financial resources ranging from foreign loan to private own funds, should be consolidated to the most prioritized projects in the Philippines. The policies are required as follows,

i.e. efficient utilization of existing facilities, appropriation of internal funds or cross subsidy, port charge normalization, appropriation of low interest domestic loan, further acceleration of private sector participation, bond issuing for port investment in the long run, appropriation of low interest foreign loan and expansion of the national government's infrastructure investment.

The appropriate strategies are pointed out as tax incentives, lowering of port fee paid by a terminal, operator to a port authority/public port development, new fund for port development, appropriate port tariff structure and joint ventures.

VI. Conclusion

This study is to focus on the improvement of port management policy by analyzing deterrent factors in the Philippines. The country which consists of more than 7,000 islands with 26 PMO and 82 TMO offices nationwide. However, there are a lot of areas to improve and be changed. This paper provides proposals in order to improve the management policy with regards to ports in the Philippines, which can be summarized as bellows.

1. According to the analysis of port competitiveness, Manila, the representative port of Philippines, is on the most inferior situation comparing to the neighbour countries in terms of infrastructures and evaluation factors such as port location, cargo volume, port service and port cost, etc. Therefore, it implies for the govern-

ment to design an appropriate political solutions to improve the port facility and management system especially in the era of digitalized e-navigation paradigm and autonomous vessel operation environment.

2. Priority concepts to be focused together with establishment of fast, economical, reliable and safe maritime transport network accelerating the development of national economy and formation of maritime transport bases to support regional society.

3. Improvement strategies to be recommended in terms of planning as establishment of nationwide port development plan coordinated with the plans of various port management public corporations, and port classification and planning principles with international gateway port, international trade port, major port including RO/RO port for major corridors and regional port.

Further, establishment of nationwide maritime transport is needed by means of concentrated development of specific international gateway bases, improvement of domestic container transport efficiency and port planning at the greater capital region, etc. as well as formation of maritime transport bases to support regional society by enhancing the mobility and supporting the remote islands development & the social reform.

4. It is also important to refine the management and operation way by means of modification of port administration and establishment of national plan for port development council in order to formulate and/revise an important /fundamental policies on port development.

Meantime an appropriate way for increasing cargo handling efficiency should be taken into account by means of longer cargo handling contract period for operator with more than 15 years and assistance in procuring cargo handling equipment by establishment of corporate fund as well as strict monitoring of cargo handling operator's productivity and appropriate port tariff setting. From daily basis to hourly basis, and also additionally introducing lease contract with cargo handling operator and reexamining port charge are necessary.

5. Refining investment and financing way is considered as vital for proper investment scheme and financial resource allocation for feasible port development

Proposed financial policies for public port development is recommended as effective utilization of existing port facilities, acceleration of private sector participation, deregulation and financial assistance to private sector, cross subsidy within port authorities, utilization of foreign loan, introduction of port tariff based on clear-cut beneficiary-payment principle and utilization of national fund/foreign fund procured by national government for lower profitable projects.

Meanwhile, an acceleration of private sector participation to port projects is needed to promote the development of international container terminal based on concession agreement etc. including cargo handling business through converting break bulk cargo handled at public ports to bulk cargo.

The additional policy promotion way is recom-

mended by the tax incentives, lowering of port tariff, joint ventures in public & private sector, new fund inducement in port development and appropriate port tariff structure, etc.

Furthermore, as a developing country, it is suggested that the Philippine government may bench mark the example of Korean overall port administration and governance structures as a good model for developing its port infrastructures since most of Korean ports has achieved a successful results through a various stage of policy mixtures such as public and privatization operation of the local ports with positive inducement of foreign investment, etc.

Finally, this study has a researching limit on demonstrating the specific political implications on the small and medium sized local ports of the countries due to lack of quantitative field data, which will remain a future studying task.

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필리핀 항만정책의 경쟁력 제고방안에 관한 연구

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국문요약

본 연구의 목적은 필리핀의 항만정책 수립의 경쟁력 제고를 위한 정책적 시사점을 도출하기 위한 것이다. 필리핀은 개발도상국으로서 연 평균 5-6%의 꾸준한 경제성장을 유지하고 있으며, 이에 따라 대외 무역거래량과 국내 인적·물적 유통량도 급격하게 증가하고 있는 추세에 있다. 그러나 이러한 물동량의 증가에도 불구하고 항만 등 인프라 시설은 매우 열악한 실정에 있으므로 이에 대한 보다 체계적인 개발계획과 추진실행이 시급한 상황이다. 본 연구에서는 AHP 기법을 적용하여 설문을 통한 항만경쟁력을 분석하고, 선행 문헌연구와 현지 각 관련 기관들로부터 획득된 내부자료 및 관계자들의 인터뷰를 통해 수집된 자료를 분석하여 항만발전 저해요인을 도출하였다. 그 결과 항만발전에 필요한 정책적 시사점으로서 보다 강화된 중앙 집중적 관리방식 도입, 항만의 투자와 운영에 관한 분리방안채택, 전국적으로 산재한 대소항만들의 목적에 따른 등급화, 효율적인 항비부과에 따른 수입원 확보 및 시설확충을 위한 선진 금융기법 및 투자유치 등의 정책이 필요하다는 결론과 시사점을 제시할 수 있었다.

주제어: 필리핀, 항만, 정책, 개선, 저해요인, AHP.

